

On the Use of Email in Further Education

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STATEMENT:

This research was undertaken under the auspices of, and submitted in fulfilment for, the award of Degree of Doctor of Philosophy in the Faculty of Applied Computing and Engineering of the University of Wales Trinity Saint David

April 2015

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Abstract:

The benefits and drawbacks of email have been widely researched using a number of approaches in a variety of contexts. Whilst there has been a general consensus regarding these there has been no unified approach to tackling the issues presented. Methodological limitations, contextual differences and focus on recipient behaviour have limited the tools that have been presented to users to enhance use. A model was proposed to overcome these limitations and provide a basis upon which email use can be enhanced and the effectiveness maximised.

A large scale study was undertaken in the Welsh Further Education sector which included all institutions both pre and post-merger. A total of 1198 survey responses were received with 1010 used for analysis. A follow up exercise comprised of fifteen in depth interviews to build upon the survey responses. Descriptive and content analysis was undertaken along with Chi Square, ANOVA and Bivariate Correlation tests.

Results have demonstrated that role culture has a significant part to play in the use of email. This analysis has also used email to demonstrate the divide between managers and non-managers. Usage statistics have shown an upward trend in the volume of email use and the extent to which it exceeds perceived manageability, an indicator of overload. The importance of working relationships has been investigated and linked to email behaviour. The future perceptions of email have been explored to show how users perceive unsustainable increases to be likely and that behavioural modification is necessary. Finally, the proposed conceptual framework has been refined and justified along with recommendations for the development of appropriate and robust training to replace current training which is poorly engaged with.

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| | |
|---|-----------|
| Contents | i |
| Contents | i |
| Figures and Tables | vi |
| Chapter 1 Introduction | 1 |
| 1.1 Background and statement of problem | 1 |
| 1.2 Organisational context | 3 |
| 1.3 Aims and objectives | 4 |
| 1.3.1 Objective one | 4 |
| 1.3.2 Objective two | 4 |
| 1.3.3 Objective three | 4 |
| 1.3.4 Objective four | 4 |
| 1.3.5 Objective five | 5 |
| 1.4 Thesis structure | 5 |
| 1.4.1 Chapter two. | 5 |
| 1.4.2 Chapter three. | 5 |
| 1.4.3 Chapter four. | 5 |
| 1.4.4 Chapter five. | 5 |
| 1.4.5 Chapter six. | 5 |
| 1.4.6 Chapter seven | 5 |
| Chapter 2 Literature Review..... | 6 |
| 2.1 Introduction | 6 |
| 2.2 Media Richness Theory | 6 |
| 2.2.1 Equivocality and Hierarchy of media | 8 |
| 2.2.2 Issues associated with MRT | 10 |
| 2.2.3 Importance of role | 12 |
| 2.2.4 Comparison of effectiveness | 14 |
| 2.2.5 Current thinking on MRT | 16 |
| 2.2.6 Conclusions on MRT | 18 |
| 2.2.7 Implications of choice | 20 |
| 2.3 Culture and Relationships..... | 21 |
| 2.4 Role Culture..... | 26 |
| 2.5 Good Working Relationships | 29 |
| 2.6 Effects of interference – noise and overload..... | 31 |
| 2.6.1 Communication Noise Theory | 32 |

| | |
|---|----|
| 2.6.2 Implications of conceptualisation of noise | 34 |
| 2.6.3 Email Overload | 36 |
| 2.6.4 Origins and development of Overload Theory | 37 |
| 2.6.5 Causes and management of overload..... | 40 |
| 2.6.6 Implications of overload..... | 42 |
| 2.6.7 Conclusions on overload | 46 |
| 2.7 Contingency Model of Communication | 47 |
| 2.7.1 Origins of contingency | 48 |
| 2.7.2 Issues associated with contingency | 50 |
| 2.7.3 Contingency and communication theory..... | 52 |
| 2.7.4 Use of contingency in this study | 54 |
| 2.8 Assumptions | 56 |
| 2.9 Suggestions for new theoretical framework | 59 |
| 2.9.1 Forwarding of Messages | 59 |
| 2.9.2 Relationship – Subjective Distance | 60 |
| 2.9.3 Objective / Physical Distance | 61 |
| 2.9.4 Group or Individual Communication | 62 |
| 2.9.5 Time Constraints – Present and Future and Immediacy of Response... 62 | |
| 2.9.6 Comfort Level | 65 |
| 2.9.7 Clarification of Complexity | 65 |
| 2.9.8 Sender / Recipient Behaviour..... | 66 |
| 2.9.9 Suitability of Content..... | 67 |
| 2.9.10 Written Record | 69 |
| 2.10 Strengths and Limitations | 70 |
| 2.11 Developments upon and differences to other approaches..... | 71 |
| 2.12 Literature Review Conclusions | 72 |
| 2.13 Further Questions to be asked based on work so far | 80 |
| 2.14 Research Questions | 82 |
| 2.14.1 Research Question one..... | 82 |
| 2.14.2 Research Question two | 82 |
| 2.14.3 Research Question three..... | 82 |
| 2.14.4 Research Question four..... | 82 |
| 2.14.5 Research Question five | 82 |
| 2.14.6 Research Question six | 82 |
| 2.14.7 Research Question seven | 82 |

| | |
|--|-----------|
| 2.14.8 Research Question eight | 82 |
| Chapter 3 Research Methods..... | 83 |
| 3.1 Introduction | 83 |
| 3.2 Academic Focus | 83 |
| 3.3 Research Paradigm and Method | 84 |
| 3.4 Philosophies – Epistemological Positions | 84 |
| 3.5 Research Approaches | 86 |
| 3.6 Ontological Positions | 87 |
| 3.7 Research Paradigm | 88 |
| 3.8 Research Methods..... | 90 |
| 3.9 Phase one | 91 |
| 3.9.1 Literature Review and Document Search | 91 |
| 3.9.2 Questionnaire | 92 |
| 3.9.3 Planning and scheduling the survey | 92 |
| 3.9.4 Ensuring that appropriate resources are available | 92 |
| 3.9.5 Designing the survey and selecting the Participants | 93 |
| 3.9.6 Identification of the Strata | 95 |
| 3.9.7 Preparing the data collection instrument | 95 |
| 3.9.8 Question Justifications..... | 98 |
| 3.9.9 Validating the survey | 112 |
| 3.9.10 Administering and scoring the instrument..... | 114 |
| 3.10 Phase two..... | 115 |
| 3.10.1 Review of the interview method..... | 116 |
| 3.10.2 Development of the instrument..... | 119 |
| 3.10.3 Question Design..... | 120 |
| 3.10.4 Validating the instrument..... | 128 |
| 3.10.5 Administering and Scoring the Instrument..... | 128 |
| 3.11 Reporting and analysing the results..... | 130 |
| 3.12 Implementation of research strategy and operationalisation..... | 138 |
| 3.12.1 Literature Review..... | 138 |
| 3.12.2 Research Methods | 140 |
| 3.12.3 Analysis and Discussion..... | 142 |
| 3.12.4 Conclusions and contribution to knowledge | 143 |
| 3.13 Methodological Limitations – Phases one and two | 143 |
| 3.14 Ethical considerations..... | 148 |

| | |
|---|------------|
| 3.15 Conclusions on Methodology..... | 150 |
| Chapter 4 Results | 152 |
| 4.1 Introduction..... | 152 |
| 4.2 Response rates, distribution and representation | 153 |
| 4.3 Results relating to culture | 157 |
| 4.4 Results relating to working relationships..... | 170 |
| 4.5 Results relating to changes in email use | 173 |
| 4.6 Results relating to future changes in email use | 174 |
| 4.7 Results relating to conceptual framework components..... | 177 |
| 4.8 Results chapter conclusions | 178 |
| Chapter 5 Analysis and Discussion | 180 |
| 5.1 Introduction..... | 180 |
| 5.2 Analysis and discussion of the impact of culture | 181 |
| 5.2.1 Meso-Cultural Role Influences | 184 |
| 5.2.2 Conclusions on Meso-Cultural Role influences | 198 |
| 5.2.3 Micro-cultural influences – Business Support Employment Groups | 201 |
| 5.2.4 Micro-Cultural Analysis – Academic Groups | 201 |
| 5.2.5 Final Conclusions | 202 |
| 5.3 Analysis and discussion of working relationships | 203 |
| 5.3.1 Constituents of good working relationships | 205 |
| 5.3.2 Email relationship conceptual framework | 212 |
| 5.3.3 Conclusions on relationships..... | 218 |
| 5.4 Analysis and discussion of changes in email use | 219 |
| 5.4.1 Sent Messages..... | 220 |
| 5.4.2 Received Messages | 222 |
| 5.4.3 Time Spent..... | 224 |
| 5.4.4 Desire to Change | 224 |
| 5.4.5 Perceived Manageability | 225 |
| 5.4.6 Perception of Wastage in Email usage..... | 225 |
| 5.4.7 Discussion of changes in email usage..... | 227 |
| 5.4.8 Conclusions on changes in email usage | 230 |
| 5.5 Analysis and discussion of the future directions of email use | 231 |
| 5.5.1 The Future Growth of Email | 232 |
| 5.5.2 Changes in User Behaviour..... | 236 |
| 5.5.3 Technological Barriers to effective usage..... | 240 |

| | |
|---|------------|
| 5.6 Analysis, discussion and justification of theoretical framework..... | 244 |
| 5.6.1 Analysis of ‘Forwarding of Messages’ component..... | 245 |
| 5.6.2 Analysis of the ‘Subjective Distance’ component | 247 |
| 5.6.3 Analysis of the ‘Objective / Physical Distance’ component..... | 249 |
| 5.6.4 Analysis of the ‘Group or Individual Communication’ component..... | 252 |
| 5.6.5 Analysis of the ‘Time Constraints – Present and Future and Immediacy of Response’ component..... | 255 |
| 5.6.6 Analysis of the ‘Comfort Level’ component..... | 259 |
| 5.6.7 Analysis of the ‘Sender / Recipient Behaviour’ component | 261 |
| 5.6.8 Analysis of the ‘Clarification of Complexity’ components..... | 267 |
| 5.6.9 Analysis of the ‘Suitability of Content’ component | 270 |
| 5.6.10 Analysis of the ‘Written Record’ component | 276 |
| 5.6.11 Theoretical framework development based upon discussion | 279 |
| 5.6.12 Overall Conceptual framework Justification..... | 281 |
| Chapter 6 Conclusions | 287 |
| 6.1 Conclusion 1 | 287 |
| 6.2 Conclusion 2..... | 291 |
| 6.3 Conclusion 3..... | 293 |
| 6.4 Conclusion 4..... | 294 |
| 6.5 Conclusion 5..... | 296 |
| 6.6 Conclusion 6..... | 298 |
| 6.7 Conclusion 7..... | 300 |
| 6.8 Philosophical Reflections..... | 303 |
| 6.9 Limitations | 307 |
| 6.10 Recommendations for Future Study | 309 |
| Chapter 7 Contribution to Knowledge and Impact..... | 313 |
| 7.1 Contribution to knowledge | 313 |
| 7.2 Impact on stakeholders and wider applicability..... | 318 |
| Chapter 8 References | 322 |
| Appendix A Survey Instrument..... | 352 |
| Appendix B Published Papers | 360 |

| | |
|--|------------|
| Figures and Tables | |
| Chapter 2 Literature Review | 6 |
| Figure 2.1. Hierarchy of media richness (Daft et al 1987)..... | 9 |
| Figure 2.2. Graphical representation based on Lee (1991, 1994)..... | 11 |
| Figure 2.3. Matrix of media richness, adapted from Newberry (2001) | 12 |
| Figure 2.4. Transmission Model of Communication (Shannon and Weaver 1949) | 32 |
| Figure 2.5. Conceptualisation of noise theory illustrating confounding factors..... | 35 |
| Figure 2.6. The empirical email model (Van Den Hooff et al 2005)..... | 54 |
| Figure 2.7. Individual decision making strategy (Beach and Mitchell 1977)..... | 55 |
| Figure 2.8. Proposed multi-dimensional contingency conceptual framework..... | 70 |
| Chapter 3 Research Methods | 83 |
| Table 3.1. Numbers of staff by role as reported by HR Departments..... | 95 |
| Table 3.2. Research questions mapped against survey objectives..... | 96 |
| Table 3.3. Mapping research questions to survey questions | 99 |
| Table 3.4. Mapping research questions to interview questions..... | 121 |
| Table 3.5. Mapping interview questions and prompts to analytical method | 135 |
| Figure 3.6. Graphical representation of strategy implementation..... | 138 |
| Chapter 4 Results | 152 |
| Table 4.1. Mapping research questions to results chapters..... | 153 |
| Table 4.2. Response rates by institution | 154 |
| Table 4.3. Gender distribution of respondents | 155 |
| Table 4.4. Age group distribution of respondents..... | 156 |
| Table 4.5. Changes in sent message load by employment role..... | 158 |
| Table 4.6 Changes in received message load by employment role | 158 |
| Table 4.7. Messages sent per day by employment role..... | 159 |
| Figure 4.7a. Graphical representation of messages sent by employment role. .. | 159 |
| Table 4.8. Messages received per day by employment role | 160 |
| Figure 4.8a. Graphical representation of messages received by employment role. | 160 |
| Table 4.9. Desire to change email usage by employment role | 161 |
| Figure4.9a. Graphical representation of the desire to change email usage by employment role. | 162 |
| Table 4.10. Reasons for to the desire to change email usage, by employment role | 163 |
| Table 4.11. Do you consider others when using email?..... | 163 |

| | |
|---|-----|
| Table 4.12 Considerations made of others when using email by employment role | 164 |
| Table 4.13. Perceptions of wasted time by employment role | 164 |
| Table 4.14 User derived reasons for wasted time by employment role..... | 165 |
| Table 4.15. Wasteful behaviours by employment role | 166 |
| Table 4.16. Most important issues related to wasteful behaviour by role | 166 |
| Table 4.17. Attendance at email training within the past twelve months by employment role | 167 |
| Table 4.18. Was the training appropriate for the role? | 167 |
| Table 4.19. The nature of the training undertaken by employment role. | 167 |
| Table 4.20. Sent message proportions between roles | 167 |
| Table 4.21. Received message proportions between roles | 168 |
| Table 4.22. Relative differences in sent and received loads versus perceived manageable maximums..... | 168 |
| Table 4.23. Overload and the desire to change | 169 |
| Table 4.24. The drawbacks to email use by employment role | 169 |
| Table 4.25 .The benefits of email use by employment role..... | 170 |
| Table 4.26. Components of good working relationships (including no answer) .. | 171 |
| Table 4.27. Components of good working relationships (excluding no answer).. | 171 |
| Table 4.28. Components of good working relationships, exclusive of no answer, by role..... | 172 |
| Table 4.29. Consideration of others when sending email | 172 |
| Table 4.30. Consideration of others when using email (excluding no answer) ... | 172 |
| Table 4.31. Impact of spam and irrelevant messages on desire to change. | 173 |
| Table 4.32. The perceived number of messages manageable to send in a day. 173 | |
| Table 4.33. The perceived number of messages manageable to receive in a day | 173 |
| Table 4.34. Average time spent daily using email..... | 173 |
| Table 4.35. User perceptions of whether or not they waste time when using email | 174 |
| Table 4.36. Average percentage of time wasted when using email | 174 |
| Table 4.37. A chronological representation of literature dealing with email usage | 174 |
| Table 4.38. Do you believe that email usage will continue to grow in the future?175 | |
| Table 4.39. Reasons provided by those who answered yes with qualification | 175 |
| Table 4.40. Reasons provided by those who answered no with qualification | 176 |
| Table 4.41. How user behaviour could be changed to increase efficiency..... | 176 |

| | |
|--|------------|
| Table 4.42. Barriers to effective usage (excluding non-responses) | 177 |
| Table 4.43. Factors have on the decision to use email | 178 |
| Table 4.44. How component consideration may enhance future email use. | 178 |
| Chapter 5 Analysis and Discussion | 180 |
| Table 5.1. Mapping research questions to analysis and discussion chapters | 181 |
| Table 5.2. Sent message proportions between roles | 188 |
| Table 5.3. Received message proportions between roles | 189 |
| Table 5.4. Relationship between role and sent and received messages. | 191 |
| Table 5.5. Overload and the desire to change | 193 |
| Figure 5.6. Email user profiles based on role..... | 200 |
| Table 5.7. Statistical significance results for meso and micro-cultural differences | 203 |
| Table 5.8. Components of good working relationships, exclusive of no answer. | 209 |
| Figure 5.9. Graphical representation of relationships and sent email by role..... | 213 |
| Table 5.10. Overload markers and time pressure as a conceptual framework component. | 256 |
| Table 5.11. Inappropriate use by role | 271 |
| Figure 5.12. Revision of the multidimensional conceptual framework..... | 280 |
| Figure 5.13. Final revision of the multidimensional conceptual framework | 281 |
| Chapter 6 Conclusions | 287 |
| Table 6.1. Mapping research questions to conclusions | 287 |

Chapter 1 Introduction

1.1 Background and statement of problem

Effective communication is an essential cornerstone in the execution of effective business activities such as Human Resources, Sales and Marketing and Management. Without communication, these activities could not be carried out (Thompson 2003). Processes or systems that can be leveraged effectively to enhance communication should therefore be of interest to organisations. Systems such as email combine low cost and ease of use (Collins 1996) with speed and reliability (Russell and Cohen 1997, Holliday 1999 and Yu and Yu 2001) to help generate competitive advantage (Robson and Tourish 2005). Overall, 83% of business users view email as a business critical tool (Plantronics 2013).

Initially identified as a communication method that would add a significant new dimension to communication within organisations (Bengston 1980) Email has grown to become one of the most dominant communication methods in business (Whitaker *et al* 2006). In 2008 the Radicatti group estimated that one point three billion legitimate email addresses existed (Radicatti 2008). Furthermore Radicatti and Levenstein (2013) estimated that one hundred and eighty three billion emails are sent and received, worldwide, every day. As a result there is the potential for the use of email to become the expected norm rather than as a means of enhancing other communication modes where applicable.

Despite the clear potential benefits of email use there are concerns over the widespread nature of its application. Several studies exist (Yell 2003, Curran and Casey 2006, Hewitt 2006, 2007 Seshadri and Cartenson 2007 and Cunnigham and Greene 2008) which highlight issues regarding email use ranging from concerns over load, inappropriate use, wastage and bullying. All of these issues detract from the overall effectiveness of the communication method. Importantly, early theorists suggested that email would replace other means of communication in the workplace (Bengston 1980). However, it was soon observed that email served as an additional communication channel, adding to the load created by telephone calls and face-to-face meetings (Hiltz and Turoff 1985)

The potential damage caused by poor email use, as discussed above, is a concern, Ingham (2003) highlighted this through a study into email overload. In this study users who had a poor experience with email systems would enter into a

gradual decline in how effectively they were able to use email culminating in an opt out from the system entirely. The outcome of this, if on a wide enough scale, would be damaging to an organisation's ability to communicate effectively.

There are also additional impacts on individuals as a result of modern email practices. Indications are that that users are finding it harder to distinguish between work and private time, for example, Westling (2001) noted that 42% and 60% of users check email when on holiday and 23% check at weekends. Over 77% of users had more than one email account registered.

In addition to the finding of Thompson (2003), Hargie *et al* (2004) considered that anything that acts to reduce the effectiveness of communication needs to be targeted and resolved as a priority. Poor email use would impact upon this and needs to be targeted.

The potential for waste in email usage has been identified by a number of organisations. Phones4U and Vodafone are two technology companies that have removed the facility for internal email citing that it causes more wastage than it provides benefits (Thomas 2003). A similar approach has been taken by Ferrari who have banned 'all staff' emails and Volkswagen who prevent any email from being sent or received between the period one hour after the close of business and the start of business the following day.

Even wider reaching measures are being brought in to deal with email wastage and overload in the UK and beyond, Castella (2014) further discussed how France has taken steps to reduce email load by controlling whether workers can contact one another after 6pm whilst this is not an outright ban it has brought up the question about whether or not such legislation could be brought in to the UK to help protect workers. In Germany, government sponsored research has found a link between constant email access and poor mental health and is therefore moving to ban emails after 6pm.

Despite appearing as logical methods of dealing with a difficult situation, these approaches key into a theory of communication media selection that suggests that email be replaced with face-to-face communication wherever possible. Media Richness Theory (Daft and Lengel 1986) suggests that email is inferior to telephone and face-to-face communications and is therefore to be avoided where

possible. This advice is still provided in modern communication practice. Tims (2011) suggests replacing email with face-to-face communication where possible.

Despite the disadvantages, overload issues, and recommendations to use other means of communication email usage remains high. As a result a more practical approach needs to be taken to manage these issues rather than avoid them. A census of current practice is required to measure the extent of the load issue and to look at contributing factors. In addition, practical approaches to reducing waste need to be explored so that email can continue to be used for tasks for which it is effective whilst targeting behaviour linked to ineffective use.

Taking this approach will provide a practical approach to making email more effective. The effects of poor communication can be reduced and the advantage that effective communication brings can be maximised.

1.2 Organisational context

This research will be conducted within the context of the Welsh Further Education Sector. The sector employs an equivalent of 8,775 (2011 / 2012 <https://statswales.gov.uk>) full time employment (FTE) across thirteen institutions in Wales. The number of institutions has been reduced from nineteen at the commencement of this study to the current figure.

The sector provides post sixteen vocational and academic qualifications including university franchise provision up to and including level seven. Full and part time provision is undertaken as well as significant amounts of work based learning and assessments. The sector also holds Department of Work and Pensions contracts for the support of individuals training to get back into work.

The Welsh FE sector is different to the sector in England in that whilst colleges remain as separate incorporated bodies, they are overseen by a single organisation and common contracts exist within institutions ensuring both parity across the sector and parity with school teachers. This situation makes the sector ideal for study as cross sector conclusions and comparisons can more readily drawn.

In addition to favourable conditions, the financial demands on the sector also make it a good candidate for study due to the receptiveness to money saving initiatives. In the 2012/2013 academic year a 1.5% cut was announced with a proposed further 5% for the 2013/2014 academic year. Significant cost findings

would be required to meet these spending cuts. However, the sector has been under pressure to become more efficient for longer than that (Colegau Cymru 2014).

In 2004/2005 the sector employed 9,910 FTE which reduced to 8,775 by 2011/1012, prior to the most recent cuts announcements. This demonstrates that a method of reducing costs without compromising front line services. This is becoming increasingly difficult, Colegau Cymru (2014) noted that in the climate of continuous cuts it would be unreasonable to expect colleges to continue the volume of education currently provided and that staff costs continue to constitute the single largest area of expenditure suggesting that a way of managing cuts would be to reducing these costs.

Areas of waste exist that can be targeted before reducing staffing, of which email misuse is one. It is therefore in the best interest of Colleges to target wastage in existing systems in order to allow them to meet efficiency saving targets without reducing their capability to provide core services.

The proposed research is designed to explore email use in the Welsh FE sector as a whole and identify mechanisms by which cost savings may be achieved. The outcomes of the research can be disseminated to the sector in order to enable institutions to put in place the recommendations and reduce costs associated with ineffective email use.

1.3 Aims and objectives

1.3.1 Objective one-Design a conceptual framework that could be used to enhance email usage within the FE Sector in Wales.

1.3.2 Objective two-Critically evaluate the role of culture and relationship on the use of email in the Welsh FE Sector.

1.3.3 Objective three Critically evaluate the impact of time spent and wasted using e-mail

1.3.4 Objective four- Critically evaluate user perceptions of how email usage will develop in the future.

1.3.5 Objective five-Critically evaluate the proposed conceptual framework suggest how it may be implemented.

1.4 Thesis structure

1.4.1 Chapter two. This chapter will cover the literature review elements required to explore the background in order to effectively address the learning objectives. Relevant theories related to media selection, culture, email overload and contingency models will be critically analysed and evaluated. From this information a new theoretical framework for email selection will be proposed. In addition to these areas, this chapter will evaluate the literature surrounding email policies to assess the impact on current practice.

1.4.2 Chapter three. This chapter will start by establishing the philosophical basis of the research approaches selected. The research phases will be established and the methods used in each will be critically evaluated to justify their use. The data collection tools will be explained and their construction justified in light of findings in the literature review. The data collection process will be overviewed and ethical issues related to the research discussed in detail.

1.4.3 Chapter four. This chapter will present the results from the primary research phases conducted. The results will be presented in themed categories to mirror the literature review and will be linked to the research questions developed at the end of the literature review.

1.4.4 Chapter five. This chapter contains discussion chapters to fully analyse and evaluate the findings of the primary research phases. The impact of culture, email usage, relationships and future directions of email will be handled critically to establish the key findings of the research. The analysis and discussion will be linked to the research questions

1.4.5 Chapter six. This chapter will include the conclusions of the research. Each research question will be handled separately. For each research questions, the relevant conclusions will be presented and limitations will be discussed along with opportunities for further study.

1.4.6 Chapter seven. The original contribution to knowledge will be discussed throughout this chapter. Each research objective will be considered in the identification of contribution and the significant additions will be discussed.

Chapter 2 Literature Review

2.1 Introduction

This literature review will discuss the theories behind the use of email as a means of communication leading to the suggestion of a new conceptual framework. The theories included in the development of the new conceptual framework have been selected to represent a variety of methodological approaches to the study of email as well as dealing directly with using email as a means of communicating. The purpose is to propose a contingency based conceptual framework for the selection of an alternative method of communication where email has been selected.

Media Richness, culture the effects of interference and noise as well as the implications of using contingent approaches will be discussed in depth to evaluate their implications on email use. Based upon this discussion a theoretical framework will be proposed the value of which will be assessed later in the research.

2.2 Media Richness Theory

The introduction chapter presented the idea of advice being provided to users being out of date. The main basis upon which this advice is based is Media Richness Theory (MRT) which will therefore feature as the first element of the literature review. MRT (Daft and Lengel 1986) is central in the development of a conceptual framework for the selection or deselection of email in a given situation. It is the first model of communication that includes email in a ranking of best means of communicating. Although it has been widely discredited in its original form by authors such as Fann and Smeltzer (1989), Rice (1992), Markus (1994) and Allen (1994) the basic conclusions are still used by communication consultants when helping organisations to reduce email usage. These findings are supported by Tims (2011) quoting consultants 'Think Productive' who suggest that face-to-face conversations should always be used in place of email messages.

Additionally, the literature produced in the intervening years since the publishing of the original theory has identified a number of, as yet largely unexploited, gaps in the original theory (Lee 1991, Rice 1992, Markus 1994, Lee 1994, Kahai and Cooper (2003). These gaps consider issues such as relationship between the sender and recipient, language, culture and other situational factors. MRT considers the ability of a communication medium to convey a message with the minimum of uncertainty and ambiguity (Daft and Lengel 1986). Through this

theory, the ability to overcome frames of reference, clarify ambiguous issues and facilitate understanding is considered. Essentially MRT claims to measure how well a communication method can reproduce the information that was sent using it.

MRT is based upon two key assumptions. It assumes that communication within organisations is undertaken with the desire to reduce uncertainty caused by an absence of information (Daft and Lengel 1986). This is accompanied by equivocality which is caused by ambiguity, not by a lack of information but by poor transmission of information or multiple or unsuitable channels used to send information. The second assumption is that different communication media would be employed depending on the level of equivocality of the subject. For example, a high level of equivocality, would require a richer means of communication such as face-to-face communication (Daft and Lengel 1986). This may also reduce uncertainty as long as suitable information is transmitted.

To measure the level of media richness in different circumstances, Daft and Lengel (1986) identified four key categories, immediacy in terms of feedback, multiple cues, language variety and the focus of intent upon the recipient. Feedback is important as it allows questions to be asked and points clarified. Multiple cues may include body language, inflection and other visual and auditory cues that enhance communication. Rutter and Stephenson, (1979), characterised communication methods that do not possess multiple cues as being 'cueless'. Language variety considers the range of meaning that can be conveyed. Numbers can be quantified and convey greater accuracy whilst words, through qualitative considerations, convey broader concepts and ideas.

Personal focus considers that messages will be better conveyed if individuals' feelings and emotions are present in the communication. This would require a methodological approach that enables qualitative feedback, a feature not present in the MRT. What is not clear here is whether this component of measuring media richness considers whether or not the recipient is receptive to the information being conveyed at the specific time of receipt. Based upon these categories Daft and Lengel (1986) and later Rice and Shook (1990) concluded that face-to-face communication would be considered the richest form of communication media on a sliding scale which saw e-mail and written memos as the least rich means of communication.

There is an issue as to whether users are able to separate effectiveness from convenience. It may be that face-to-face communication was most effective out of those originally considered by Daft and Lengel (1986) but email is the most convenient. The issue raised here is whether or not convenience should be considered as part of richness as it strongly influences media choice. Convenience may lead to an increase in load suggesting that users may not recognise ineffective use.

The usefulness and accuracy of this theory to managers was further considered by Daft *et al* (1987) through a study into managers which attempted to quantify qualitative issues to be analysed. Each instance of communication was graded upon its level of equivocality by a panel of judges. The subjective nature of these assessments reflects the entirely subjective nature of equivocality itself. The argument brought forward was that equivocality was the issue in terms of dealing with new media, insofar as the nature of information was not the problem, the means by which it is communicated may cause problems.

In this study sixty situations were considered, a small sample upon which to base the far reaching conclusions drawn. The study included in depth interviews with a convenience sample of managers rather than a broader random sample, calling into question the transferability of the findings. Critical Success Factors were used to assess the communication needs of these managers and from this, assessments on how to meet these needs were made. Each of these managers was then asked to describe communication events. This method mirrors the critical incident technique developed by Rosenbloom and Wolik (1970).

2.2.1 Equivocality and Hierarchy of media

Once a set of generic communication events was collated each was assessed using the equivocality scale, aiming to prove that face-to-face communication remained the richest in a given situation. Each managerial participant in the study was provided with a scale of one to five grading low to high equivocality respectively. Each judge was briefed on equivocality and provided with frames of reference upon which to base their judgement on the scale.

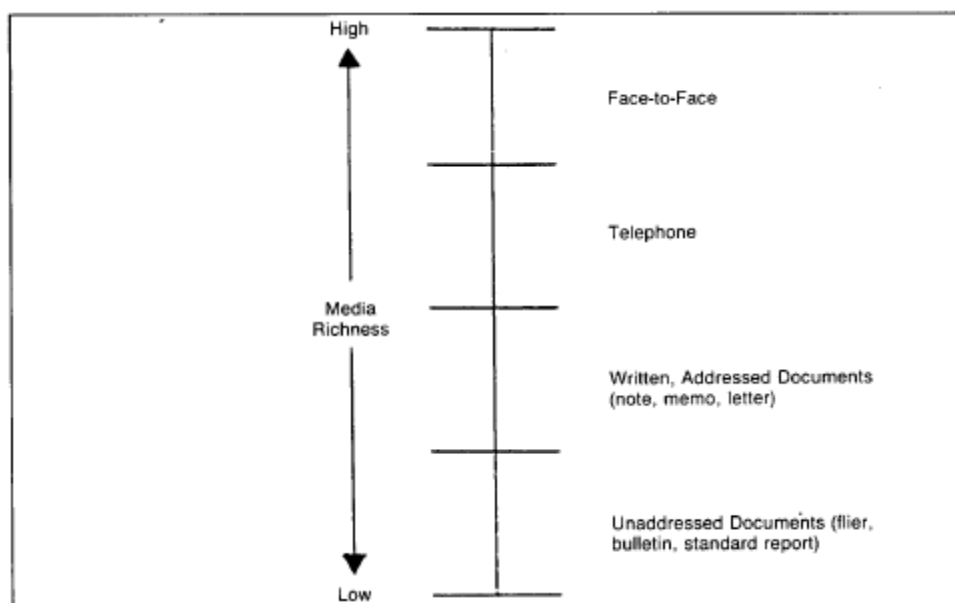
This method does not directly assess the communication methods in the given situations and does not allow for the communication media to be tested in the situations and an assessment of the relative merits of each made. Therefore, it does not directly measure which method of communication is most suited to a

given situation, it assumes this based upon scales of equivocality which leads to the conclusion that face-to-face communication is always most rich regardless of the situation.

However, the second phase of this research did call for managers to assign a most appropriate method of communication to the given situations in order to match these with equivocality measures. Whilst this does introduce the idea of direct media selection, it is still not measuring actual events, the focus is on theoretical events.

Daft *et al* (1987) proposed the model illustrated in figure 2.1, clearly showing the scale upon which different methods of communication are graded based upon their level of media richness. In this case, media richness has been assessed based upon the criteria for media richness established by Daft and Lengel (1986). The model only addresses the selection of media and does not consider the importance of situation that Daft *et al* (1987) suggested as being important. The findings of Daft *et al* (1987) further demonstrated that as equivocality increases, so does the requirement for the use of more rich means of communication. As discussed, the methodological limitations call into question the value of the findings.

Figure 2.1. Hierarchy of media richness (Daft et al 1987)



2.2.2 Issues associated with MRT

MRT is called into question by authors such as Markus (1994) and Dennis and Kinney (1998) who point out that the key measure upon which MRT is built is that of media choice as opposed to actual media usage. The work conducted by Markus (1994) is widely considered to be the single most important empirical refutation of the theory (Ngwenyama 1997).

It was argued that the findings of Daft and Lengel (1986) and Daft *et al* (1987) could only support the notion that media richness applied to selection of the communication media and to put it on a scale, as seen in Daft *et al* (1987) negated the impact of situational factors. The quantitative approach used in the original theory ignored the qualitative feedback on the impact of situation that is needed to fully measure the effectiveness of the communication method.

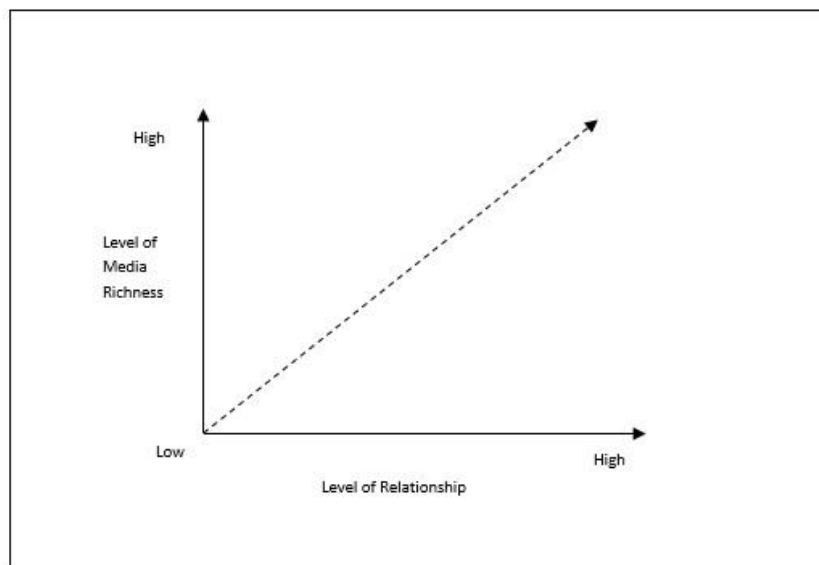
Fann and Smeltzer (1989) and Hunter and Allen (1992) further discussed that the proponents of MRT were not correctly measuring methods against the theory as they only addressed choice, using a set of theoretical situations, rather than use. Rice (1992) concluded that the importance of MRT should be considered to be low as there were too many uncontrolled factors involved in deciding whether a message medium is rich or not.

The positivist perspective of the natural science model, upon which the theory rests, describes the transfer of information as a purely physical process (Contractor and Eisenberg 1990). In this process the people involved, their decisions, opinions and actions are not considered to be important. The perspective also causes the differences in meaning that may occur during communication to only ever be viewed as negative. This in turn leads to the assumption that, in comparison to others, the selected media must be less rich. Lee (1991) points out that the human element in communication cannot be ignored and must play an essential role in media and communication richness theory. Lee (1994) employed the interpretive paradigm to consider the input of the person in the process. Lee (1994) concluded that it was the interactions and relationships between the people involved and not the mode of communication delivery that would mediate the potential for richness in communication.

The role of relationships between users requires exploring rather than limiting the approach to manager perspectives. Whilst Daft and Lengel (1986) did consider the use of communication media by managers there was no measure of the impact of

relationship factors. Figure 2.2 presents a graphical interpretation of the findings of Lee (1991, 1994) showing the relationship between media richness and relationship. As the level of relationship increases a less rich communication method may be considered richer. Methods of communicating which possess higher levels of media richness according to Daft *et al* (1987), would remain high on the level of media richness. Where this approach differs is that it would allow other methods considered as being low in media richness to be considered richer.

Figure 2.2. Graphical representation based on Lee (1991, 1994)



However, in this case, relationship is the only situational factor considered as a means of tempering richness. Daft *et al* (1987) do not list specific factors that affect communication in different situations so specifying relationship as a factor is an important step forward. Relationships may be able to reduce the equivocality of a situation as they introduce a known component to the novel situation by enhancing the personal focus of the communication event. Newberry (2001) considered MRT and created a matrix to consider how rich different methods of communication are in relation to the original criteria laid down by Daft and Lengel (1986). Seven different types of communication were considered and were plotted in the table as shown in figure 2.3

Having plotted the communication methods the richness of each was scored either high, medium or low to create a hierarchy based on aggregate scores. The findings demonstrated that face-to-face methods of communication remain the richest with addressed text based and non-addressed text based communication methods as less rich respectively. Once again, this approach represents a strongly

quantitative approach to measuring richness of communication, ignoring the wealth of feedback that a qualitative element would bring.

Figure 2.3. Matrix of media richness, adapted from Newberry (2001)

| Media Rating (across) Criteria(down) | High | Medium | Low |
|---|--|---|---|
| Feedback | Face-to-face Video Conferencing Synchronous Audio Text Based Chat | | E-mail Threaded Discussion Asynchronous Audio |
| Multiple cues | Face-to-face | Video Conferencing | Synchronous Audio Asynchronous Audio Text Based Chat E-mail Threaded Discussion |
| Message Tailoring | Face-to-face | Video Conferencing Synchronous Audio E-mail | Text Based Chat Asynchronous Audio Threaded Discussion |
| Emotions | Face-to-face | Video Conferencing Synchronous Audio Asynchronous Audio | Text Based Chat E-mail Threaded Discussion |

Where the research by Newberry (2001) differs is the inclusion of new media. Video conferencing, instant chat and threaded discussions were included to reflect the progression in technology. The findings focus on richness based upon whether a communication method is synchronous or asynchronous.

Face-to-face, video conferencing and text based chat would be considered rich as they operate synchronously despite text based chat lacking in traditional cues such as body language (Newberry 2001). Methods such as email are asynchronous as immediate feedback is not required, or possible, a potential benefit of the method. These methods would be considered as possessing a low richness. Despite taking a different perspective, the findings appear to validate the original conclusions of MRT but are still subject to the methodological limitations of applying a scientific approach to a social science issue.

2.2.3 Importance of role

MRT discussion progressed to focus on matching message content and delivery method (Kahai and Cooper 2003). The more closely the two are matched through careful selection, the more closely the received message would match the intended message. These findings were supported by the work of Johnson and Lederer (2005) where communication between CEOs (Chief Executive Officers)

and CIOs (Chief Information Officers) was explored. Two hundred and twenty eight different organisations were involved in this study demonstrating that content and mode of delivery need to be clearly linked. These conclusions strongly echoed the original conclusions drawn by Daft *et al* (1987) demonstrating that thinking in this area, and research approaches, had come full circle during this time.

The dichotomy of opinion demonstrated by different paradigms suggests that MRT must be tempered by the role that people play in the communication process and that these relationships must play a key role when considering richness. What neither of these opinions considers is how these relationships are generated what type of relationship they are, supporting the need to explore the nature of working relationships.

Email was seen by Daft and Lengel (1986) and Daft *et al* (1987) as possessing a low level of media richness. The initial reasons for this focused upon the written and informal nature of the medium, placing it on a par with memos.

(Sproull and Kiesler 1991) recognised that the early conclusions drawn by Daft and Lengel (1986) were biased by the relatively untested use of email as a wide spread communication method. Little was understood at the time on the development of theory on how to maximise email usage to meet the criteria of MRT as at this time the technology and systems did not exist to realise the full potential of email. This is evidenced by the findings of Newberry (2001).

Although it appeared that little was understood about email, Trevino *et al* (1987) identified that as email was affected by situational determinants such as distance, expediency or time, it would be a good option for communication as it would help to reduce equivocality. It should be considered as a richer method of communication than first suggested.

Additionally, the consideration that email is driven by routine or simple content and a lack of symbolic reasons pushed email down the list of rich communication media without considering the potential impact on equivocality. This raises the importance of considering the situation in which communication takes place as explorations of situations requires the involvement of those who participate in the communication process.

2.2.4 Comparison of effectiveness

Young (1995) who undertook a study within a large organisation to assess the richness of communication by email. The case study organisation is only described as a 'multinational computer company based in Silicon Valley' within the article. The conclusions demonstrated that e-mail was a more effective alternative to face-to-face communication as it removed some of the barriers to meeting new people and actually enhanced working relationships. In this organisation, overall 70% of all communication was conducted by e-mail, and a majority reported that email constituted the majority of their workplace interactions. The findings here reflect the developmental trend in email as previously identified which saw computer companies adopting and using email more prolifically than other organisations. This limitation was recognised in the article. Young (1995) went on to conclude that in many larger organisations, conducting all communication using face-to-face meetings is unfeasible, possibly due to either time or geographical constraints. In these cases e-mail has come to be seen as the best, or definitive method of communication to use. Young (1995) concluded that the issue of the use of e-mail versus face-to-face communication needed additional attention.

Lee (1994) investigated managerial uses of different types of communication and focused heavily on the use of email. He reflected upon investigations made in HPC Inc. which operates in the risk management market, a less technologically advanced market to that which Young (1995) would go on to look at. The study concluded that e-mail was not a suitable alternative to face-to-face communication as it lacked the fundamental markers of rich communication such as cues and immediacy of feedback, two of the key markers laid down by Daft and Lengel (1986). The consideration of email as a rich communication method must be situational and would therefore include equivocality. There is also evidence that just because a situation demands speed, distance and relative low cost, as recognised by Trevino *et al* (1987), these situational determinants are not necessarily enough to allow email to be considered a rich method of communication. There may be an element of organisational macro or even micro-culture at play in this situation, there is scope to explore this further. Evidence shows that equivocality potentially exists as an issue in entire markets, with each having potential for equivocality, rather than simply existing as a situation by situation issue as suggest by Daft *et al* (1987)

Lee (1994) also suggested that the works of authors such as Contractor and Eisenberg (1990) and Fulk *et al* (1990) produced conclusions unable to support their views of the richness of email communication, due to a lack of consideration of situational determinants and relationship factors. This supports a case for a critical realist approach which would combine quantitative and qualitative approaches.

Dennis and Kinney (1998) used 230 subjects to consider whether richer media was needed for tasks with higher equivocality. It was found that immediacy of cues is key in identifying a method of communication as being rich. Additionally new media communication methods, identified as lean communication methods, were considered in relation to less lean communication methods. There was no reduction in communication effectiveness when leaner methods, such as email, were employed. This suggests that the premise that a less rich method of communication would hamper communication effectiveness is not easily supported. These findings were supported by Panteli (2001) who explored the idea that although email traditionally resided on the lower end of the communication richness scale, it need not be. Findings suggested that through construction of the text emotional cues could be transferred effectively to the recipient. These markers would not easily be measured in a quantified way, some qualitative analysis would be required.

Where time and consideration was given to the construction of email messages, Panteli (2001) argued that the method was superior to face-to-face communication enabling things to be unsaid before they were said in the first place. Whilst unsaying something is not strictly a communication method itself, the ability to edit the message to remove something that may be regretted at a later date is an advantage. Whilst all written forms of communication share this, email, and other computer based written methods, make this much easier to achieve.

These findings supported Kluger and DeNisi (1996) who concluded that e-mail allowed for an extended reflection period which did not require the immediate response required by face-to-face communication. Despite this benefit, Newberry (2001) ranked this poorly as part of the measures of richness used. There was less chance of the recipient becoming defensive and more time could be spent considering a reply, increasing the richness of the communication method. Time taken should also be considered as a situational factor which would affect media

richness, allowing senders to consider the range of cues involved, and the language involved in the communication event. These conclusions support the findings of Lee (1994) which showed that individual manipulation of communication media is more important than the media itself. However, Panteli (2001) found differences in the ability of people at different levels of organisations to structure emails effectively to enhance the richness of the media. As such, media richness is also determined by the relationships in organisations and usage as suggested earlier.

2.2.5 Current thinking on MRT

Building on these findings, the recent literature on email (post 2000) as media richness focuses on comparing email to face-to-face communication in terms of how well messages are conveyed (Lightfoot 2006, Harris and Paradise 2007, Riordan and Kruez 2010).

Seshadri and Carstenson (2007) investigated e-mail usage in non-profit organisations identifying a critical shortcoming of e-mail where it negated the effects of non-verbal cues, found in face-to-face communication, leading to the misinterpretation of a message. This is fundamental characteristic of a media that lacks richness. However, Seshadri and Cartenson (2007) also considered that organisations are often forced into using email to increase their reach and are prepared to sacrifice media richness to achieve this.

Stevens and McElhill (2000) took a tangential view to the prevailing argument and suggested that instead of arguing about which method was better, one should consider the relative merits of each. It was identified that there is often a pay off between richness of communication and its potential reach. The benefit of being able to send an e-mail over a long distance or to a large number of recipients is tempered by the lack of richness within that communication. It could be argued that within an individual organisation sharing a geographical position that there is no payback for using e-mail as the reach, or distance, is too short to balance the loss of richness within the communication. Users should consider very carefully whether a message that needs to be conveyed to all users should be done so using an e-mail or would a large staff meeting be a better option. In some cases, such as staff briefings, both may be the most effective option.

Lo and Lie (2008) further concluded that one should look at the methods of communicating as a spectrum. Conclusions showed that users were able to make

decisions and select an appropriate method of communication taking into account specific factors, especially the importance of trust which was selected as the key relationship factor in this study. Traditionally richer methods of communication were selected when physical distance was increased, and trust decreased for a highly equivocal task (Lo and Lie 2008). However, in each case where trust was increased less rich methods of communication could be used to effectively communicate information. There is a clear evidence that situation is linked with media selection irrespective of traditional media richness methods. Key situational considerations researched are the relationships between the individuals communicating and increasing the time taken to carry out the communication activity. Each method of communication can be graded upon its media richness based on situational factors for any given situation. It is suggested that relationship and time are the key situational factors that need to be considered in each situation in order to select the correct method of communication to ensure that the message is conveyed as effectively as possible.

Throughout the period 1997–2007, when researchers were looking closely at media richness in relation to email, opinion in industrial examples has changed markedly as well. For example, in 1997, the Office Team surveyed executives and found that most still preferred face-to-face communications, only 34% preferring e-mail (DeKay 2010). By 2005 this had changed with the majority of executives preferring e-mail to any other means of communication (DeKay 2010). Despite the drawbacks demonstrated throughout the literature, the adoption of email has continued unabated.

Lo and Lie (2008) suggest that increases in email use is not necessarily as a result of an improved perception of media richness. It is noted that as the perceived complexity of the communication method is reduced then the potential for adoption and effective use increases. Considered in relation to the original suggestions of Daft and Lengel (1986) and Daft *et al* (1987) an interesting relationship emerges.

Face-to-face communication is a natural method of communicating with one another, telephone is a natural extension of this. However, written methods of communication and those that require use of technology, such as email, are not as natural and will only be adopted and used effectively as the technology and systems improves to make it easier for users to engage with them (Lo and Lie 2008). The use of written means of communication relies upon levels of literacy

possessed by both sender and recipient. It is difficult to conclusively say whether or not standards are changing. UNESCO report literacy in the UK at being over 99% in over fifteen year olds whereas Lewis and Wray (2000) show that 30-40% of students between eleven and fourteen fail to reach the reading standards for their age. Although it is hard to assess the actual levels of literacy one could assume that some users may be more comfortable with the use of written language compared with others, however, little evidence exists to support this.

2.2.6 Conclusions on MRT

This chapter has shown that the initial assumptions and factors that MRT was based upon, whilst still relevant, fail to accommodate essential situational factors. Each successive review of MRT has added extra dimensions to the original ideas encouraging a greater weighting to be given to the relationship between those who are communicating and the nature of the communication materials. Some consideration is given to the experience that individuals possess in using different communication media, however, this area warrants further exploration to link these ideas to those of relationship.

Email was initially considered to be a less rich communication as it lacked immediacy of feedback and cues identified as characteristics of rich communication. Further evaluation of MRT suggested that email may be considered as a richer communication method if used in appropriate situations, playing to the strengths of the medium. Where a good relationship exists between individuals, email may be a rich form of communication. Other situational determinants such as distance and time constraints may also qualify email as the richest form of communication for a given situation. Again, further exploration of the relationship between email and interpersonal relationships warrants further exploration.

It is clear that there are a number of concerns that need to be addressed further, especially the issue of relationship. MRT does consider subjective situations, but it does not include the influence placed upon communication by relationship. MRT hinted at the importance of the relationship between individuals communicating by highlighting the importance of cues, emotions and language but did not address the issue of relationship directly.

The key measure of equivocality is ambiguity caused by poor transmission caused by ineffective selection of a non-rich method of communication and does not

consider the influence placed upon this by the relationship between those communicating. As a result of this MRT should be considered as one dimensional as it focuses solely upon media selection.

Literary examples illustrate where the weaknesses identified by Daft and Lengel (1986) may actually become future strengths of the communication medium. Burton (1994) considered how well e-mail could be used to generate multi directional communication which would include applications such as enhanced, effective two way communication between managers and subordinates. Burton (1994) found that e-mail was a better method of communicating between a number of individuals than any other information. Importantly, the idea that e-mail could be used as a more abstract means of communication involving the sharing of complex and varied ideas was explored.

Findings showed that e-mail allowed an open discussion not possible in any other way than group based face-to-face communication, which may not always be possible in the business environment, suggesting that situational factors must be considered in relation to communication media selection. Burton (1994) also found that the quality of stored information as a result was poorer than that found in the formal minutes of face-to-face meetings as it lacked the structure and guidelines that make them universally accessible. As such structure could be added to the use of email to ensure that where it is used it is done so in as rich a way as possible.

Markus (1994) and Dennis and Kinney (1998) addressed relationship by introducing a human element to communication. Choice as opposed to actual use was moved to a central position. Choice is influenced heavily by situational determinants, one of which has to be the relationship that exists between individuals. This echoes the findings of Lee (1991), who clearly demonstrated the importance of human relationships in media richness. This suggests that relationship may be considered as a subjective distance. The closer two people are in terms of their social and professional relationships, the shorter the subjective distance and therefore the richer a method of communicating may be considered.

The further work conducted by Newberry (2001) to place new media into the Media Richness model recycled the original categories used by Daft and Lengel

(1986), there is still the issue of relationship missing from this consideration. Even in the most up to date literature such as Kahai and Cooper (2003) and Johnson and Lederer (2005) relationship is still not placed centrally in the consideration of Media Richness.

2.2.7 Implications of choice

As well as relationship there are other factors which need to be considered as determinants of media richness such as choice. A range of communication media implies the option for users to choose between them. As a result users need to be able to discriminate between the methods to select the correct one. MRT does not point users towards making choices as it prescribes which methods of communication are richer and therefore more effective.

Choice may lead to uncertainty as experience may not allow users to effectively choose a means of communication in a given situation. For example, if MRT recommends face-to-face conversation but this option is not viable then, what information can the user make use of to decide upon which method to use? Where a user may wish to make a choice MRT does not provide guidance or criteria on how to choose in a given situation. Helping a user to choose would allow them to compromise in a given situation.

Rice (1992) concluded that the lack of consideration of variables impacting upon communication method selection meant that MRT could not correctly measure that which it aimed to measure. The issues of how; why and when to communicate were not considered. This highlights the importance of considering additional issues such as overload, time and physical distance as criteria upon which to select a method of communication.

The differing conclusions of Lee (1994) and Young (1995) in terms of email usage in organisations highlights the potential impact of organisational culture. There is an argument as to whether organisational culture affects individual relationship or whether individuals influence the organisational culture. The one appears to beget the other and as such should be considered as one. Organisational culture is a construct of the relationships between individuals which may be tempered by organisational directives such as in terms of internal communication methods.

Using criteria to make a decision upon whether email would be an appropriate method of communication in a given situation is important. As evidence produced

by Ingham (2003) and Fisher *et al* (2006) shows that email usage is increasing, providing users with information and criteria upon which to decide whether email would be a rich, and therefore an effective method of communication in a given situation is essential.

MRT should not be abandoned in its entirety. The evidence that the selection of communication media based upon a series of situational factors is strong and should be built upon. However, importance of relationship has not been given enough weight. Whilst some authors have alluded or concluded that relationships need to be considered, at no point has it been placed centrally in consideration of media richness. Relationship introduces the idea of subjective and objective distance.

Subjective distance considers the relationship between the individuals involved in communication. Lee (1991, 1994) considered relationship as a measure of trust between individuals. Considering trust as relationship broadens the meaning introducing factors such as organisational culture, differences between personal and professional relationships and the shared culture of individuals undertaking similar roles in different organisations. For example, human resources specialists would have a shared culture rooted in their profession, previous training and governing rules.

Relationship and communication should be considered as part of organisational culture. Considering communication and culture theory helps to put the importance of relationship and familiarity into context within the organisation. This was discussed firstly as part of the new model generation in chapter 2.9 and then analysed and discussed in chapters 5.2, 5.3 and 5.6. To further consider the role of the relationship in communication it is necessary to consider culture as a concept and explore the role that it plays in communication.

2.3 Culture and Relationships

The discussion on MRT showed that relationships must form an integral part of a communication process in order to improve the richness of the method used. The relationships between individuals within organisations are influenced by the cultures within which they exist Daniels *et al* (1997). Therefore, discussion of culture and how it manifests is important in understanding the impact it will have on the richness of communication methods. Equally important is understanding the nature of good working relationships in order to identify their existence.

This chapter is not intended to represent a detailed discussion on the concepts and definitions of organisational culture. However, different ideas of what culture is will be considered in order to look at the impact that it has upon communication. It is intended to consider the role of communication within culture and the effect that different cultures can have on the ability of individuals within them to communicate with those who are part of another culture. Different ideas of what culture is will be considered in order to look at the impact that it has upon communication.

Much of the interest and work around organisational culture can be attributed to the findings of Abegglen (1958) who looked at the social organisation in a Japanese factory setting. The definition of culture itself has evolved to mean different things at different times within an organisation. Bloom (1987) considers that culture is something high, profound and respectable and should be considered as greater than the individuals who are affected by it, elevating people to a point where they can make use of their faculties. Steffen (1999) considers that in terms of organisational culture, this definition exists only where likeminded individuals are grouped and put to task.

Huczynski and Buchanan (2001) view culture as a collection of uniform and enduring values, beliefs and cultures that are shared by members of an organisation. These are learnt by new recruits and passed on down the generations of employees. It is considered that the culture of an organisation helps to distinguish it from another. The beliefs and values shared by individuals within organisations shape the culture, supporting the need to identify cultures within a study. It is expected that these shared beliefs can be seen within departments in an organisation supporting the need to identify members of smaller working groups such as departments or specific working teams. Different views of the constitution of culture illustrate an impact upon communication that shares common elements between them.

Trice and Beyer (1984) postulate that ceremonies, history and rites define culture in organisations. This view limits the definitions of culture to something that the organisation is. This limits the ability of culture to grow beyond the physical constraints of the organisation itself rather than the conceptual boundaries set by the individuals within the culture.

Cognitive approaches to organisational culture focus on what the organisation has opposed to what the organisation is (Hofstede 1986, Schein 1985). Culture, within this definition, results from group members who are exposed to environmental conditions and stimuli. One of these stimuli is communication. The means and types of communication are effected by the environmental conditions. As part of this definition, culture endures beyond the tenure of individuals and is preserved within the organisation. It is a reasonable extrapolation that these definitions could apply to subcultures within the organisation as well as the organisation as a whole.

Organisational culture definitions continue to evolve. Dahler-Larsen (1994) identified three components that have transformed organisational culture. The worsening competitive position of western organisations highlighted the increasing importance of culture and organisational performance (Denison 1990). As culture is affected directly by behaviour and both of these influence, and are influenced by communication.

The second component is the changing view of organisational culture itself. Original, mechanistic approaches as defined by Mintzberg (1989) placing employees within the organisation on a par with other physical resources, could not stand up to the changes identified within the first component. Shared values and desire for meaning within the organisation helped to lead to a societal crisis as observed by Dahler-Larsen (1994).

These three components highlight the importance of relationships between employees and therefore the need for consistent communication Hoogervorst *et al* (2004). Individuals settle into the boundaries set by the organisational culture or subculture. Any disruption, i.e. communication that does not match the predefined limits, causes confusion.

Carlone and Taylor (1998) go on to further consider the differences in the view of organisational culture and its development. The theories generally take two different viewpoints. The first is that the idea that the culture of an organisation exists separately from the outside world and is distinct in itself is the first consideration. The second viewpoint sees the 'culture revolution' introducing the ideas of social constructs and a deeper culture that is not simply rooted in the needs and drivers of the organisation itself.

Having considered what culture is and the role of communication within it, it is important to consider the importance of culture as a factor of organisational performance. It has been identified that culture is an important component of organisational life (Hargie *et al* 2004). Redding and Tompkins (1988) discuss that the importance of culture within an organisation is that it can be a method of influencing corporate direction and the environment in which it happens. The importance of culture within the organisation is considered by Carlone and Taylor (1998) who saw culture as an important tool in New Managerialism to control workers by putting them into groups. Carlone and Taylor (1998) also consider whether the issue of organisation of culture or the culture of the organisation is important in the identification of specific cultural groups.

Daniels *et al* (1997) considered that culture is important as it exists where people share a common reference for acting towards one another. This consideration often leads to the development of subcultures within an organisation. Whilst there may be an overriding organisational culture, departments within the organisation may possess cultures of their own. Considering the six key aspects proposed by Deal and Kennedy (1999) it is clear how this could be perceived. Deal and Kennedy (1999) identify six key aspects of organisational culture. History is important in allowing staff to answer the question 'who are we'? This activity allows people to gain a sense of place within the historical development of the organisation. Stories that come from the organisation, such as major events in the past, help to drive the culture. The beliefs and values of the individuals are key. The organisation will seek to recruit individuals who fit within their value systems and similarly the individuals will impact upon these belief systems. Heroes are also important in organisational culture as they embody the beliefs and values. All organisations have rituals and ceremonies that give a sense of place and purpose. Finally, organisational culture allows for networks to be formed within the organisation. These factors may also have a direct influence on the departmental level, perhaps to even a greater degree than in the organisation as a whole.

Where an organisation is large the more direct influence over the cultural perceptions of an individual are going to come from the department or area in which they work. The History, as defined by Deal and Kennedy (1999) will be formed by the history of that department and the individual will see themselves as part of it. Stories will be based around people and events from that department as

will major events. The beliefs and values, whilst rooted in overall organisational culture will be interpreted differently. For example a culture of 'excellence' will be interpreted differently.

With recruitment often delegated to middle management, departments will have a say in the appointment of individuals to a department thus strengthening their beliefs and values. Heroes will be those from within the department and rituals and ceremonies such as social events, timings of meetings etc. will be defined by the department itself. Manley (2000) observed that different cultures exist within an organisation and that these cultures influence one another. Shome and Hegde (2002) considers that culture in relation to communication can be understood as the site of struggle through which social order is maintained, challenged, produced, reproduced, in the performance of various social relations of equity and inequity.

Shome and Hegde (2002) explore the importance of globalisation on this perspective. Considering the linking of a number of cultures and their difficulties in integrating effectively is mirrored within the organisation where different cultural cells can be observed having the same difficulties in interacting due to cultural differences. Communication is closely linked to employee behaviour which is, in turn, closely linked to organisational performance (Hoogervorst *et al* 2004). Culture within an organisation can have a direct impact on the effectiveness of communication. For example, Hoogervorst *et al* (2004) point out that cynicism can have a severely detrimental effect on organisational communication.

Lillis and Tian (2008) observed that cultural factors have a direct influence upon communications within and between organisations. They observed that, as organisations expand into foreign markets there are communication difficulties experienced as a result of differences in culture. Similarly it could be proposed that these problems can be observed between departments in the same organisation.

As such it can be considered that as each department has their own culture so each department will communicate internally in different ways that reflect that culture. It is proposed that those within these subcultures will possess a closer subjective distance in that they understand inferred meaning, understand in jokes, have a good understanding of slang, acronyms and abbreviations and have a high level of trust in their colleagues. This low subjective distance potentially allows a traditionally less rich means of communication, such as email, to be used more

effectively as the missing elements of richness are replaced by the closeness of the culture.

Barret and Bass (1976) and Child (1981) argued that the strength of the underlying symbols and values within a cultural system have an important impact on structures, choices and potential effectiveness. Therefore, when communicating interdepartmentally, although a degree of culture can be assumed, for example, in the form of some shared acronyms or systems, generally the subjective distance can be considered to be greater. As such, with fewer cultural references, a traditionally more rich means of communication should be employed to ensure its effectiveness.

Communication must therefore be seen as an important component of culture. As Holmes *et al* (2007) point out, whilst communication can be viewed as a part of culture it is one of the heaviest influences upon it. The existing culture influences the way in which members communicate and likewise, communication strongly influences the nature and structure of that culture. This was observed by Holmes and Stubbe (2003) who explored the impact of a change of leadership within an organisation. The conclusions supported that idea that communication and culture are mutually influential.

Relationship can be considered as an important part of culture as shown by the discussion of literature so far. Not enough is known about the role of culture within email communications to draw any significant conclusions at this stage. Further investigation of the role that culture plays in the use of email at work will need to be conducted in order to build it into the theoretical conceptual framework.

2.4 Role Culture

Culture has been shown to influence communication approaches but it can be difficult to establish the existence of specific cultures within organisations. Role culture (Handy 1976) enables cultural delineations to be made in a structured manner and will ease analysis of the impact of culture.

When considering the Welsh FE Sector different roles can be observed within the workforce. These roles represent the bureaucratic pillars represented by different roles within the organisation (Handy 1976). The concept of Role Culture will be defined and discussed within the narrow constraints laid down by a lack of critical discussion about the approach. A justification will be provided for considering that

role culture exists within the FE sector and the roles will be defined along with basic descriptions of their remit. Role culture defines cultural groups within an organisation along lines of described roles and processes that form the pillars which support the organisation (Handy 1976). The different roles will have different characteristics that will contribute to the overall function of the organisation. Handy (1976) also considers that due to different roles there will be different cultures operating within the organisation.

Cultures within the workplace can be defined along the lines of the job that is to be performed rather than the personalities or traits that usually define organisational cultures (Handy 1995). The approach assumes that there is a degree of rationality and that analysis can take place in a logical manner. As such, the activities within the roles can be broken down and subdivided to generate an operational flow chart of work. Such things may be defined by job descriptions attached to a specific role (Handy 1995). The pillars that support the organisation represent these roles and are distinct and essential elements of the whole. Without the roles, the work of the whole organisation would fail. As such, role culture fits well within public sector organisations with bureaucratic structures where expertise and depth of specialisation are more important than flexibility. Deal and Kennedy (1999) believed that the individuals and how they shaped the culture and how culture impacted on them was key in the existence of cultures within the organisation. Role culture alternatively considers that the duties within the role are fixed and that individuals can be slotted into the role based on their individual abilities and that they would conform to the role and exhibit the traits of that role.

Based upon the definitions by Handy (1976), role culture can be seen as existing within the Welsh FE sector. All jobs are defined by job descriptions that provide a framework upon which justification for the job rests. In addition, selection of the appropriate candidate can be undertaken. This is the basis for the existence of role culture as defined by Handy (1995) as individuals are being placed in boxes in order to fill specific needs within the organisation. There also exist clear demarcations between pay scales further demonstrating that clear roles exist within the sector. The Universities and Colleges Union (UCU 2014) publish expected national pay scales for the sector within which there are separate scales for Lecturers or Academic Staff, Business Support Staff and Management Staff. Different pay scales and rates suggests a different expectation related to the

activities of such staff and therefore different role. In addition to pay scales, Colegau Cymru (Colegau Cymru 2014) publish joint contracts for Colleges. These show a clear difference in the working remit, expectations and conditions between Academic, Business Support and Management grade staff.

With separate pay scales and separate contracts it is clear that separate roles exist within the organisations under study. It has been shown by Holmes and Stubbe (2003), Hoogervorst *et al* (2004) and Lillis and Tian (2008) that culture will have an impact on communication within organisations. If the different roles possess different cultures then it stands to reason that each role will communicate using email differently and that communication outside of the culture may be considered cross-cultural communication. Cross-Cultural Communication constructs (Guirdham 2005) focus on communication between individuals who have different cultures by virtue of living in different geographical areas, speaking different languages or having different religious beliefs. Cross cultural communication Hofstede (1981) and Hofstede (1993) studied large, multi-national organisation and not smaller organisations that exist in one country and how different cultures may struggle to communicate within one another within those organisations.

Whilst it is clear that role cultures exist within FE Colleges it is difficult to ascertain the difficulties that these cultures may have in communicating via email with each other. Research has shown that communication is important in the development of culture and that the shared values and beliefs of that culture will influence the communication that takes place. Whether role, role culture and communication has an impact on the use of email within the FE Sector has never been tested and will therefore be subject to investigation in this study. If communication is a construct of culture then there should be discernible differences in the way that communication occurs within the identified roles. As such, there should be differences in the way that the different roles use their email to communicate. This will be analysed and discussed through primary research.

Kincaid *et al* (1983) considered that communication is the work that is required to sustain human groups by transferring information between individuals based upon common beliefs, values and behaviours that represent common ways of thinking and acting. Kincaid *et al* (1983) believed that the main driver for the difference in

cultural thinking between groups exists as a result of the amount of contact individuals have within groupings of individuals who share likeminded thinking. As a result cultures begin to form and the more time that is spent with these people and the more communication that takes place, the more distinct the cultural groups become.

If differences in the way that roles use email are shown then there should be a corresponding pattern in the relationships that exist. Members of each role should be spending greater time with others in the same role. It is further considered that the more internal activity within a culture, the stronger that culture becomes and therefore the greater difficulty there will be in communicating outside of that cultural grouping. Presently, these assertions are only tested in the traditional cross cultural situations where different nationalities constitute different cultures.

2.5 Good Working Relationships

As shown in the previous sub-chapter, cultures appear to have an influence on the communication process. Importantly, relationships between the individuals involved is a factor. In order to explore the role of relationships it is necessary to establish what constitutes good working relationships to enable users to identify where good working relationships exist and how this will mediate use of email. Once established theoretically, this will inform a line of enquiry within the primary research.

Good working relationships are considered to be a factor in the needs and expectations at work discussion (Mullins 2008). In work, an expectation exists for the development of friendships, group working and the desire for affiliation and dependability. It is considered that people draw motivation for this when working. Careful review of the literature suggest that there is a paucity of information related to the constitution of good working relationships as few academic articles could be found on the topic. Work on relationships tends to focus on formal superior and subordinate interactions, how relationships are used as tools for maintaining power and how they may be used as an enablement tool to enhance the experience of work (Mullins 2008).

A good working relationship may be considered to exist where individuals work effectively together to achieve a task, as with effective teamwork (Mullins 2008). Whilst good communication is required for effective teamwork, the activity is task based and therefore does not necessarily require what one would consider to be a

good working relationship to achieve. However, Hinde (1979) noted that there are difficulties inherent in the study of working relationships in that any assessment will be largely subjective. This will mean that findings related to working relationships will be situation specific and not suitable to be generalised as social, cultural and situational factors will exist within the study group that will be exclusive to that group. Gabarro (1978) identified key characteristics of mature relationships. The degree of self-disclosure, the degree and richness of knowledge that parties have of the others and the ability to predict and anticipate each other's reactions and responses are important considerations in good working relationships. Gabarro (1978) also identified the importance of effective and substitutable communication.

Self-disclosure moves beyond the traditional safe areas regarding relationships where individuals tend to stick to socially acceptable, top level issues. Where self-disclosure is increased, the relationships moves beyond safe areas and may include personally sensitive information or controversial topics. Knowledge of each other may include the superficial biographic information about people but will also move beyond that to include core aspects of personality, needs and style. This helps to drive mutual respect which is based upon the understanding and ability to predict actions and responses and therefore act accordingly in advance.

The ability to predict actions and responses moves beyond the socially expected responses and takes greater account of individual contingencies that govern the reactions of others. This links to mutual respect previously mentioned. Effective and substitutable communication sees messages being transmitted with meanings understood rapidly, accurately and with sensitivities to nuances contained within. This lends weight to the argument that good relationships can drive effective communication as where good relationships exist, effective communication is an outcome. Substitutable communication considers the individual's ability to use alternative modes of communication to convey messages as required by the person they are communicating with. Again, this is important as it suggest that knowledge of an individual may mediate the selection of communication methods. Whilst there are difficulties in identifying what constitutes good working relationships, the effects on communication can be seen when looking at roles.

Kincaid *et al* (1983) discussed that communication leads to distinct relationships based upon cultural groundings. Mullins (2008) went on to further consider, based upon Hofstede (1981) that relationships can be used to develop greater flexibility

in the interpretation of situations. Essentially, developing relationships outside of one's own cultural role can lead to a reduction in the difficulties caused by cultural differences. Developing better relationships with individuals from different working cultures could improve communication between those cultures. A difficulty faced here is the environments in which these relationships are formed. Handy (1995) identified that roles are normally quite distinct and that individuals will spend the vast majority of their time working within their own roles resulting in a closer connection with the prevailing culture. As time spent is a driver for the development of working relationships in order to develop beyond superficial interactions there are likely to be difficulties in spending enough time with different roles, and therefore working cultures, to develop working relationships. As a subjective concept, an effective way to identify what constitutes a good working relationship would be to ask users to report on their experiences of good working relationships.

These identified factors relating to good working relationships indicate a level of trust, respect and an ability to communicate effectively. Due to a lack of research in this area these are the issues that will be investigated in the primary research. Open ended questions will be used in an attempt to replicate these findings and consider their applicability in the context of email usage.

2.6 Effects of interference – noise and overload

This sub-chapter represents a departure from the previous areas of discussion. It has been established the culture and relationship may have an impact on email use and that good working relationships are hard to quantify. In order to place this into context it is necessary to explore how email communication may be misused and the influence of overload on the process of communication.

Interference considers the situational determinants that may cause a method of communication to be considered less effective despite other measures considering it to be the most effective. Interference is suggested to be a combination of Communication Noise Theory (CNT) (Shannon and Weaver 1949) and Overload Theory (OT) (Hiltz and Turoff 1985, Whittaker and Sidner 1996, Whittaker et al 2006, Fisher 2006).

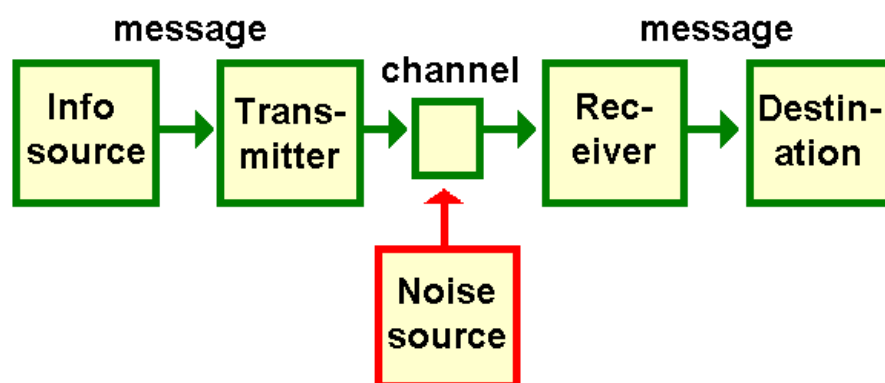
CNT predicts the effect of poor communication behaviour at any stage of the communication process (Shannon and Weaver 1949). As a result selection of the communication media may cause noise and reduce communication effectiveness.

Overload considers the impact of usage of any method of communication and the possible interference it may cause to communication. For example, if the most appropriate method of communication as predicted by CNT is overused then it will reduce the effectiveness of that method of communicating. Considering both Noise and Overload together allows the user to assess the potential interference that may be caused by selecting that particular means of communication.

2.6.1 Communication Noise Theory

CNT is rooted in the Transmission Model of Communication (TMC) as proposed by Shannon and Weaver (1949). Widely considered to be the start point of modern communication theory this model introduced the idea of noise as being a negative influencing factor in communication. The key components of internal communication are laid out by Shannon and Weaver (1949) are shown in figure 2.4. Communication starts with an information source that produces the content of the message to be transmitted. This is passed on to a transmitter which encodes the message into a set of signals. This transmitter may be a machine or mathematical process or may be a person devising a message. A channel is then used to transmit the message, it is here that Shannon and Weaver (1949) suggest that noise may be introduced. The message is received by a receiver to be decoded before passing on to the destination for final usage.

Figure 2.4. Transmission Model of Communication (Shannon and Weaver 1949)



'Noise' is a concept that is described as a physical process such as interference on a telephone line and only has an impact during the actual use of the communication channel. It is possible to consider noise as a conceptual construct introducing the potential for noise to be experienced at any point during the communication process. The relationship between the stages becomes closer with consideration of the impact on each subsequent stage needing consideration.

TMC is criticised for its focus on the actual transmission of a message rather than the gathering of feedback and usage of cues (Carey 1989). Importantly for this study, the initial assertion that noise is generally an issue rooted in the channel of transmission needs to be considered closely. Noise may be introduced at any point in the communication process. For example, if the wrong transmitter is selected for a given piece of communication then noise may be introduced or if due consideration is not given to the communication channel during the conception of a message then noise may be introduced. Consideration of each stage of the process demonstrates the capacity for noise to be introduced into the communication process. Exploring each stage will show how the influence of human decisions will introduce noise into the process.

The first stage of message conception is the first point at which noise may be introduced, breaking down the process (Neisser 1983). Poorly encoded, ambiguous messages will immediately introduce 'noise' which is particularly important when considering messages generated by people. Even where a message is generated by a machine it is only done so according to a set of predetermined criteria produced by a person. It is impossible to divorce the actions of the individual from the process of conceiving a message and therefore introducing noise. Carefully constructing a message based upon the content, the intended channel and the recipient is essential in reducing the impact of noise.

Secondly, the message is encoded and appropriate language selected. Baguley (1994) suggests that communication can be based on language such as written or verbal and non-language based such as tactile means and body and facial language (Baguley 1994). Purely written communication often lacks the extra cues that can be provided by facial expressions or tone of voice. Beck (1999) identifies that effective communication refers only to the perception of the message and not the message that was sent. Perception is heavily influenced by the encoding and transmission suggesting that the actions of the sender may have a large impact on the interpretation. This is an area that was explored further during the primary research phase.

The language in which it is written must allow for effective interpretation to ensure that perception matches intention. In terms of the email process, Yates and Orlikowski (1992) observed that the tendency for users of e-mail to use colloquialisms, abbreviations, acronyms, informal language or social specific dialects means that communication can become very exclusive between specific individuals. This can make communication less effective if not everyone shares the approach for example not understanding acronyms of social specific dialects. Furthermore it reflects the considerations made when looking at cultures and subjective distance and illustrates how a lack of recognition of these may introduce noise and therefore hinder communication within and between individuals and groups.

The medium chosen, the decoding of the message and the interpretation must allow for the intended message to get across placing responsibility on both the sender and the recipient of the message, reflected in OT. Selecting the medium is a complex exercise and one that can introduce difficulties into communication easily (Evans 1979). As well as introducing the physical noise (Shannon and Weaver 1949), Kurtzburg *et al* (2006) also suggests responses to communication methods will differ from person to person as internal guidelines which automatically exist to decide which type of message resides in which medium. Allowing for a range of communication medium is therefore the most effective way of ensuring effective communication. This provides a different perspective to that put forward by MRT which suggests that a means of communication is going be richer and therefore better in the majority of situations. Reflections on TMC add further weight to the argument that the relationship between the sender and recipient in terms of the perception of a communication method may influence how well the message can be communicated.

2.6.2 Implications of conceptualisation of noise

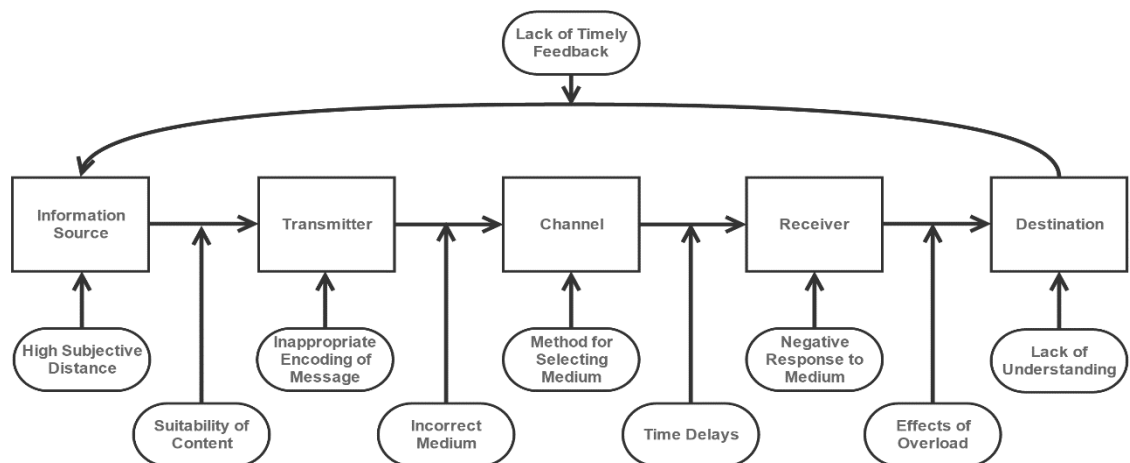
Baguley, (1994) identifies that the combination of conception, encoding and transmitting has an impact on overall perception of the message. Individual idiosyncrasies of the receiver also have a role to play within the perception of the message. Once perception has occurred the sender should seek confirmation. Feedback allows for the sender to check the message has been understood as well as gaining insight into ways of enhancing their personal communication.

The biggest influence on TMC is the speed with which means of communicating are evolving as Evans (1979) identified the increasing role that technology would play in the enhancement of communication in the future. As the ability to generate and send messages becomes quicker, the need to consider points at which noise is introduced becomes greater. The potential for generating overload or to send unintentionally incoherent or damaging message increases when the ease of sending increases. As such, the technology of email needs to be closely considered to look at the impacts it has on the ways in which users interact.

Whilst TMC represents a simplistic view of a form of interference that may interrupt the communication process, considering the conceptual meanings of noise allow for the consideration of potential breakdown points. Considering the behaviours of both the sender and recipient to include culture, language, subjective and objective distance could allow for the potential for the introduction of noise to be reduced. Further to this the relationship between sender and recipient needs to be explored by looking at email overload in conjunction with the development of technology. Whilst the original idea of noise being introduced as part of the communication process should not be considered as simplistic as TMC would suggest, the conceptual idea allows for the consideration of a variety of impacting contingencies which must be considered.

Figure 2.5 illustrates the discussions undertaken on the conceptualisation of noise. The original communication noise model (Shannon and Weaver 1949) is shown with the confounding factors placed to illustrate at which point they impact upon the communication process.

Figure 2.5. Conceptualisation of noise theory illustrating confounding factors



2.6.3 Email Overload

An increase in the use of email has resulted in an increase in e-mail overload as observed by (Goodwin 1999). Increasing numbers of e-mails are sent leading to users finding it harder to identify which are important and need attention and which do not. Although e-mails can be marked as important, the nature of e-mail communication means that what the sender deems as important the receiver may not view it the same way (Goodwin 1999). A PSA Research Study found that workers received around 22 e-mails per day on average of which only 27% actually required immediate attention. The reasoning behind the other 73% of emails has, therefore, not been clearly thought through (Pitney Bowes 2000) found In comparison Pitney Bowes (2000) found average 39 mails were dealt with per day and Lyons (2002) found that around 49 minutes per day were used dealing with e-mail.

Brady (2006) found that overuse of e-mail fostered introvert behaviour where staff had become entirely reliant on e-mail for their social as well as professional interactions. This situation was viewed as being damaging to the organisation. Connolly (1996) suggested that a minimum of 20% of all communication needs to be made using personal means such as face-to-face or telephone communication. Another management tool suggested by Kimble *et al* (1998) is to remove the copying tools from emails so that they are only sent to the intended recipients. Parker (1999) suggests that the majority of email overload issues can be dealt with by establishing a policy for the usage of email within an organisation.

Ingham (2003) considered the possible direct implications of e-mail overload. Too many emails may lead users to fail to respond creating the situation where feedback is missing and two way communication fails. Email may also be responded to incorrectly or in a way that lacks detail reducing the effectiveness. Importantly email overload may lead to messages being systematically filtered to remove communication from unwanted parties. This may damage the effectiveness of e-mail badly as important information may not get through.

It is difficult to predict whether a given load will generate overload making it difficult to identify specific users at risk. Reinke and Chamorro-Premuzic (2014) identified that personality traits play an important role in the perception of email overload, more so than actual load itself. This suggests that a measure of individual capacity

is needed. A noted limitation to the study was that results are difficult to replicate in this area and so may be of limited use. Despite the potential for e-mail overload, Adam (2002) points out that it is no worse than the telephone which has become the conduit for idle gossip, social activities and unsolicited communications in much the same way as e-mail. In 2003 the mobile phone company Phones4U banned the use of e-mail entirely stating that it would save £1.6million every year in wasted time for these very reasons (Thomas 2003). The majority of shortcomings identified in relation to email appear benign; they are the result of the method and lack of understanding rather than of damaging intent. Mahoney (1998) commented that the majority of managers simply assume that email will be used in such a way.

However, Carr (1998) discovered that not only might e-mail be damaging as a result of its shortcomings but also as a result of malicious use by workers. Politicking, bullying and undue pressure placed on workers by the language within e-mails cannot simply be put down to a lack of education on e-mail etiquette but must also be attributed to abuse of the systems put in place as a means of communication (Carr 1998). Utlely (1997) found during a study that over half of users surveyed had received abusive e-mails, 54% of which were from managers. The possible damage to internal communication that can be caused by abusing a communication method like this would be disastrous. In order to fully explore the extent and implications of email overload it is necessary to investigate the origins and developments of the concept and what suggestions have been made to help mitigate the impact of it.

2.6.4 Origins and development of Overload Theory

The consideration that email may cause additional load on workers was first identified by Denning (1982). Through this work the suggestion that email was going to provide an additional means of communication rather than an alternative one was made and discussed. Denning (1982) did not see that the use of face-to-face or telephone communication would reduce as a result of growth in email. At this point these considerations are not identified by a specific title but they appear to possess the early indicators of email overload.

Denning (1982) identified two key considerations for the use of email in order to reduce the extra burden it may place on workers. Important email needs to be correctly channelled to highlight it and bring it to the attention of the user.

Additionally other, less important emails need to be channelled so that the important ones stand out. What Denning (1982) does not consider is whose responsibility it is to decide upon important and less important messages as in modern email systems it is the sender who decides upon the level of importance of messages.

In order to achieve effective channelling Denning (1982) suggested setting filing systems. The concept of filing systems would go on to form the basis of a number of theories on email overload. Filing systems would allow the user to channel mail input into different folders depending on their content. Whether this would be user generated or software generated is not considered at this time. Although the concept of email overload is not fully formed and named at this point there are clear indicators that researchers believe that there is the potential for unrestrained email usage to have a negative impact upon communication and that controls need to be build it. Hiltz and Turoff (1985) built upon the work of Denning (1982) by fully defining the concept of overload in computer mediated communication (CMC), and importantly, how this overload may be brought about. Overload at this point is defined as being a volume of communication that leads users to experience feelings of not coping. The actual level of communication load is not defined as it will vary from user to user.

Hiltz and Turoff (1985) identified the point at which overload starts to become a problem. It was observed that at low levels of communication even where no coping strategies were employed, users were generally able to cope effectively. It was shown that users who experienced high levels of communication generally developed effective coping strategies rapidly. The key concern focused upon those who were experiencing increasing loads of communication but had yet to develop effective coping strategies. Different users may develop different levels of types of coping strategies which will not be uniform. This research also echoed the opinion of Denning (1982) that email represented an additional communication channel as opposed to an alternative channel. Hiltz and Turoff (1985) suggested that a specific set of strategies needs to be put into place that recognise the position that CMC's hold within the spectrum of communication media. Further consideration was made about the setting up of filing systems and filtering messages.

Taking a step further from the conclusions of Denning (1982), the most effective method of filing was to allow users to initiate and structure the filing systems rather than to impose filing systems through the software. Whilst the facility should be built into the software to facilitate the easy generation of filing systems, the user should ultimately be responsible for generating the filing system. In order to achieve this, Hiltz and Turoff (1985) concluded that users will require assistance to implement a system. Additionally, they observed that the key coping strategy currently in place for those experiencing increased overload was to either ignore messages or to filter them indiscriminately. These behaviours were viewed as being counterproductive and prompted the move towards structured assistance. It was concluded that these interventions would be best enacted on an individual basis to produce individual coping strategies.

Hiltz and Turoff (1985) do recognise that the implementation of individual support may be difficult and suggest that certain software rules and restrictions can be put into place. This is not ideal as they place limitations rather than dealing with the underlying problem, but they may assist in reducing load. The banning of circular messages, restriction of message length or limits of message channels were discussed, however, these are less relevant in modern systems as they can be circumvented easily by attaching large. It was observed that the sender is at least equally responsible for the mail loading of others as the recipients are themselves. The effectiveness of coping strategies could be improved if the sending behaviour of users is also tackled to reduce overall incoming message load. The need for senders to be considerate is essential. The ideas of Denning (1982) have been developed by Hiltz and Turoff (1985) and have moved a step closer to fully defining email overload and the contributing factors. Coping strategies do mirror the earlier findings but also build upon them to highlight the importance of individual engagement as opposed to software imposed rules.

Whittaker and Sidner (1996) revisited the work undertaken by Hiltz and Turoff (1985) in order to create a definition of email overload. A large scale piece of research was undertaken with six hundred participants. Findings supported the opinions Denning (1982) and Hiltz and Turoff (1985) and built upon them by including further aspects that would contribute to email overload. It was concluded that overload is caused by email being used for purposes that it was not originally intended for (Whittaker and Sidner 1996). This issue is viewed as compounding

overload caused by a lack of coping methods such as effective filing and inbox management, a 'black hole' method where messages go ignored is also symptomatic of poor inbox management. The use of email for unintended purposes and a lack of coping strategies result in users failing to deal with messages in a timely way. This conclusion echoes the initial concerns raised by Denning (1982) and the findings of Hiltz and Turoff (1985).

2.6.5 Causes and management of overload

Whittaker and Sidner (1996) consider that the main failing of earlier suggestions for avoiding email overload is that they are too simplistic and propose the 'one touch' method which suggests that emails should be read and then either deleted or filed appropriately with the ultimate aim of controlling the size of the inbox. This is termed by the inbox approach. This approach formed the basis of the self help guide written by Hurst (2007) who focused heavily on the management of the inbox as the key contributor to managing email overload. According to Whittaker and Sidner (1996) the barrier to the one touch model is that email is being used as a task management and calendar tool. It was recognised that users were keeping messages in their inbox, unread, in order to make them easily recognisable. According to users this was done in order that they may be addressed at a later date. The research does not define the term 'when' and so does not apply a timescale without which a plan for managing email load cannot be drawn up.

Three groups of individuals within the organisation were defined in terms of their email management techniques using inbox management as the measure (Whittaker and Sidner 1996). 'No Filers' represent users who never deal with messages in their inbox, maintain unread messages, and keep tasks within their inbox. 'Spring Cleaners' represent users who maintained large inboxes but would periodically clean them out. 'Frequent Filers' represent users who regularly file messages and tasks, often in conjunction with a task management application.

It was concluded that 'frequent filers' were better able to manage email load and were less likely to experience overload, a consideration targeted in the training interventions suggested by Soucek and Moser (2010). Incoming message load is discussed (as included in work by Denning (1982) and Hiltz and Turoff (1985) but is not considered to a major contributing factor to email overload. The overriding conclusion is that effective email management techniques and management of unintended functions are the most important methods for reducing overload. This

supports earlier findings suggesting that management of incoming messages is a key in reducing email overload. Whittaker and Sidner (1997) further concluded that to help users manage their email load systems should be redesigned to put in place better software management routines for dealing with email. This position was picked up again by Whittaker et al (2006) who were able to realise these software changes in relation to email overload.

The experiments carried out by Whittaker and Sidner (1996) were repeated ten years later by Fisher et al (2006) in order to observe how changes in email technology may affect the conclusions drawn previously. Ultimately, a number of findings were similar but other key indicators had changed significantly. Fisher *et al* (2006) found that email archives had increased significantly suggesting that users were filing more messages as a strategy for managing overload. However, the research showed that 30% of archived messages were originated by the recipient suggesting an increase in the use of the email inbox as a task management and scheduling tool. The mean size of email archives had increased tenfold in the ten years between the original research and this repeat and 50% of filed messages were older than three months which was a significant increase on the findings from the initial research.

Inbox sizes have remained similar with read messages being retained. This is in conjunction with an increase average number of incoming messages increasing to 87 per day in 2006 from 49 per day in 1996 (Fisher et al 2006). This clearly demonstrates greater use of filing strategies but does not suggest that messages are not being deleted regularly, indeed the tenfold increase in the size of archives far outstrips the doubling of incoming message load suggesting that messages are archived for future reference and possibly forgotten or retained as a paper trail. An increase in archive size, whilst indicating an increase in the use of filing as an overload reduction tool raises concerns for Hurst (2007) over the perceived weight of messages held by a user. Whilst email does not possess physical size and weight in the same way as paper mail there is still a psychological weight to be considered that accrues as a result of managing and deleting mail.

Fisher et al (2006) have shown that the coping strategies suggested by Whittaker and Sidner (1996) have generally been adopted and becoming more sophisticated with the average user using between 47 and 133 folders to file messages away.

However, an increasing incoming message load appears to have led to retention of message beyond their useful life.

Whittaker *et al* (2006) were also reconsidering their original position (although collaborating authors are different, the lead author in each case is the same). Whittaker and Sidner (1996) considered that email overload is a result of the applications being used for purposes for which they were not originally designed. Whittaker *et al* (2006) significantly changed their position considering that the adaptation of the function of email application should be viewed as a natural extension of the system rather than a factor that may cause overload.

The main reason for the changes stated are the developments in the versatility of the email applications which now allow for personal information management. This is a further development again on the original work conducted by Whittaker and Sidner (1996) who felt that management strategies were more important in reducing email load than the development of systems. Here, the development of systems are actively cited as being of benefit to users in terms of managing email load.

Despite the changes in viewpoint, Whittaker *et al* (2006) still conclude that managing the load is important. It was observed that users still leave incoming appointments in their inbox as a means of task management or they are filed in places other than in the calendar itself. The ability to create and implement complex management rules was also considered but conclusions found that these were only of use if users were able to use them correctly. The use of centrally generated message rules was not considered in this piece of research.

2.6.6 Implications of overload

Alongside Hiltz and Turoff (1985), Whittaker and Sidner (1996) and Fisher *et al* (2006). Other theorists were considering the potential implications rather than the definitions of email overload itself. Theorists such as Jackson *et al* (2003), Ingham (2003) and Whittaker (2006) considered implications rather than underpinning theory. Jackson *et al* (2003) considered the implications of overload on the working practices of users, especially the recipients. This study supported the findings of earlier theorists concluding that overload has a detrimental effect on all users.

The study found that users are disrupted by incoming messages and the need to deal with them immediately rather than wait until an opportune time. This reflects a methodology of coping by ensuring that messages do not back up. Jackson *et al* (2003) concluded that software developments could help to reduce the impact of this. Earlier findings by Hiltz and Turoff (1985) suggested that management behaviours were more important than software features. Jackson *et al* (2003) considers that software development can help management of incoming mail but that these features are there to help behavioural aspects rather than the software features actually managing the incoming load. Ingham (2003) reflected the findings by Hiltz and Turoff (1985) suggesting that the possible implications have not changed despite a marked change in the standard of technology and systems and management strategies suggested by theorists during this period.

The findings of Hiltz and Turoff (1985) were further built upon by Ingham (2003) by suggesting that whilst the management of incoming message load was an essential factor in managing message load, the volume of incoming messages itself is an essential factor and that the sender is culpable in increasing load on the recipient. Ingham (2003) found an average message load of 49 per day which is less than Fisher *et al* (2006) observed at 87 per day. There is, perhaps, a suggestion that message volume and perceived load will differ and absolute figures may not be representative of the effect on load, this warrants further exploration.

Ingham (2003) did advance the thinking about email overload by considering the use of the CC (Carbon Copy) and BCC (Blind Carbon Copy) functions. It was discovered that 100% of the participants in the study made use of these functions. Ingham (2003) considered that the use of these functions increased load by delivering irrelevant messages to users. Hurst (2007) picks up on this by advising users that a CC or BCC message is for information only and should be read and deleted. The function is not for sending important messages on which the sender will expect action. These conclusions follow on from the findings of Kimble *et al* (1998) who recommended that the CC facility should be removed from email applications to reduce the message load created by users making use of the CC function to cover themselves.

Dabbish and Kraut (2006) considered whether the email overload was a standalone issue or whether the symptoms of overload were rooted in other

communications stresses and management strategies. Key measuring tools from earlier works were used along with further measures considering task coordination and time management. Similar results were observed such as issues associated with filing of incoming messages, control of inbox content and load placed by the sender. The importance of being able to discriminate between important messages and circulars was reiterated, reflecting the work of Denning (1982). Although some mention had been made of this as an important factor during the intervening time, Dabbish and Kraut (2006) directly measured it, validating the suggestions made by Denning (1982). A total of 42 incoming messages per day were observed (Dabbish and Kraut 2006). Out of the three studies cited which report upon incoming message load this study demonstrates the lowest level. Despite this, markers of email overload were observed suggesting that email overload may exist regardless of the incoming message load. This goes against the suggestions made by a number of authors cited so far.

The further measures of task coordination and time management yielded results in terms of predicted email overload. Dabbish and Kraut (2006) found that users who displayed poor task coordination felt more overloaded than those who displayed good task coordination. Those who were able to manage their time and set strict times to check email felt less overloaded. This was supported by Kushlev and Dunn (2015) who found that checking email less frequently results in lower stress levels. There is no link made between stress and overload made in the study to support the findings of Dabbish and Kraut (2006), Jerejian *et al* (2013) suggested that there is a strong link between overload and stress generated by email and that this causes worry which is a method of dealing with the stress generated. Significant load will cause the users to worry about the email that they have not dealt with. These findings may have implications for authors suggesting training plans as a means of managing email load (see Soucek and Moser 2010). The implications suggest that generic training interventions looking at task and time management may have a direct impact on email management strategies.

The indicator of time was picked up by Sumecki *et al* (2010). The conclusions in this study found that message volume and time are the key measures concerned with email overload. The findings also concluded that age and checking habits were not an important factor. Again, the measures employed by earlier theorists were employed and earlier conclusions validated. However, Kushlev and Dunn

(2015) did find that checking habits had an impact on stress but not directly on feelings of overload. The size of the study further added weight to the findings of authors such as Ingham (2003) who used small sample sizes in their studies. Sumecki *et al* (2010) looked at email load in terms of unread messages in the inbox. It was concluded that this volume was dependant on two things, the checking and management habits of recipients and the incoming load placed by the sender.

The incoming load placed by the receipt of spam (junk) messages was not considered as an important contributing factor to email overload. This may be due to the more sophisticated message handling properties employed by email applications such as Glider (www.glider.io) which can pre-filter spam messages into a separate folder as well as providing other more sophisticated tools to help manage email flow. However, this consideration is not made in the study.

Spam messages are ones that are unsolicited by the recipient and generally of commercial content currently accounting for up to 85% of all global email (www.maawq.org). Whilst spam remains a problem, Ward (2013) highlighted the importance of bacn in email management. Bacn messages are those that sit between spam messages, those that are unsolicited, and ham messages, those that are welcomed (Ward 2013). Bacn is made up of marketing materials, reminders and newsletters sent out by companies that users have either bought from or signed up to in the past. This is significant as studies up to this point do not separate these messages from those that are productive.

Sumecki *et al* (2010) also concluded that checking messages outside of work time is a healthy load management strategy and that having specific checking times does not actually reduce the perception of load if when the user comes to check the inbox if overloaded with unread messages. Overall, the findings of Sumecki *et al* (2010) help to support those of Ingham (2003). However, Kushlev and Dunn (2015) found that reducing the number of times that a user checks email reduces stress level. This suggests that checking email regularly, even when not at work, is not necessarily an effective coping method.

The most up to date research conducted in the field at this point (Soucek and Moser 2010) has focused upon creating training programmes as suggested by earlier theorists. Where previously there has been a suggestion that training may focus on generic competencies, Soucek and Moser (2010) focused on generating

a training programme to overcome indicators of email overload as generated by earlier theorists.

Sixteen sessions were delivered across six different companies including a total of one hundred and sixty two participants. Overload indicators of incoming load, workflow, message quality, media competencies and email literacy were focused upon. The conclusions found that training was effective in helping users to cope with large volumes of email at a given time but that there was no change in the actual number of messages being sent or received. This suggests that the training, whilst reducing the effects of email overload, did so by changing coping habits rather than tackling the key issue of volume of messages.

2.6.7 Conclusions on overload

The literature has shown that whilst the development of email overload as a theory has occurred over the past twenty years, few decisive steps have been taken to develop methods of dealing with the problem. More recent studies show that despite a good grasp of the causes of email overload, archive sizes and incoming message loads continue to increase, for example Plantronics (2013) identified that email use had increased by 78% since 2010 illustrating that the fundamental factor impacting upon overload, the incoming message volume and inbox management strategies, have yet to take effect. OT still reflects the original suggestions made by Denning (1982) and continue to reflect these assumptions from a time when email was not fully understood and systems were not yet developed to their full potential. Whilst symptoms of overload have been identified in a number of studies, the perceived level of overload does not seem to have markedly increased suggesting that as users have become more used to email their expectations and capability to manage email may have improved.

Additionally, since Denning (1982) suggested that email would sit as an additional communication channel, rather than a replacement mode of communication, no attention has been paid to comparing the increasing email load with the possible reduction in the load placed by other means of communication. For example, have the number of phone calls reduced in line with the increased use of email? In which case email overload may be viewed as a transfer of load from another medium and therefore does not place an additional load on users. The proposed methods for this study would not facilitate exploration of this as a smaller group would be required for study over a significantly longer period of time. As the

theories around media and email overload have developed so have the technologies, both hardware and software, that make email possible.

The investigation of email overload shows that any media which is overused and not managed correctly, by both the sender and recipient, can suffer from interference caused by individuals' perception of excessive load. Poor response to communication, long response times and disengagement were all observed as indicators of overload, not just in email but across all communication methods.

It is proposed that an effective method of communication as predicted by distance and time measures may not be effective if the mode of communication has been overused. If the recipient becomes desensitised to the stimulus they will not respond as predicted. This suggests that in some situations where all other criteria do not suggest that email would be the most effective means of communicating, it may well be if it is a means of communication that the recipient does not associate with overload. In predicting the potential interference of overload the sender needs to consider three things. Firstly, what response do recipients have to load? There should be prior experience with the individual which would inform this decision therefore closer subjective distance would help in making this assessment.

Secondly the habits of the sender need to be considered. If email is the primary means of communication, and is overused, then the sender needs adjust the means of communication as appropriate. Thirdly the settings and rules of the system need to be understood. For example message priority settings could be employed to help the message stand out. However, recognition that the setting of a message to a high priority reflects the priorities of the sender as opposed to those of the recipient is essential. A user who consistently sends all messages marked as urgent or important may fail to get their message across when it really is urgent or important. Similarly the user who tends to telephone others may easily be ignored with caller recognition. A change of communication media may alter the response of the recipient to this. Importantly the idea of desensitisation could happen to any mode of communication. This consideration is not directly backed by theories found in the literature and will merit further exploration through primary investigation.

2.7 Contingency Model of Communication

Having established the various elements that appear to impact upon email use in sub-chapters 2.2 – 2.6 it is becoming clear that a method of enabling users to

actively consider each may enhance email use. An approach that would allow users to engage with relevant components in an order that is appropriate could be used to achieve this. Contingency approaches, could be used to achieve this. In order to assess the usefulness, the approach will be critiqued and the relevance to the problem under study will be assessed.

The contingency approach stresses the importance of the influence of situational factors, illustrating that adaption to the environment is essential in successful performance. Whilst there are a number of different interpretations on contingency theory they all tend to contest that there is no one optimum way of organising or carrying out a task

2.7.1 Origins of contingency

Contingency models were popularised by Fiedler (1964) but considerations of situational specific determinants on performance were earlier discussed by Burns and Stalker (1961) and Chandler (1962). Contingency was initially applied to leadership situations and used situational factors as determinants in leadership performance. Scales and criteria were drawn up to assess situations and individual capabilities and reconcile the difference to identify suitability in a given situation. Beyond this, contingency could be used to consider a number of different business functions and situations. For this study, the importance of contingency in the decision making process, as illustrated by Vroom and Yetton (1973) will be a key consideration.

Fry and Schellenberg (1984) discuss how contingency based theories differ from congruent propositions in that in a congruent proposition, an unconditional association is considered to exist based upon a set of variables. In a contingent proposition the association will be conditional upon other external factors acting upon the existing variables. In organisational structure, contingency theory stresses the need to 'fit' the organisational strategy to the environment (Pennings 1992) enabling high performance to be attained. Fiedler (1964) demonstrated that specific functions within the organisation are subject to contingent factors as well. In contrast, Longenecker and Pringle (1978) assert that a general theory of contingency merely attempts to fashion specifics out of the failings of other theories in particular areas.

Contingency theory itself is a subset of the contingency approach to science (Donaldson 2001). At a core level, the theory contests that that the relationship of

two variables is always dependant on the interaction of a third variable. Where two communicating individuals are the variables, this theory suggests that a third variable will influence the interaction of the first two, for example the selection of communication media.

Theorists have postulated a relationship between contingency and organisational structure, to include the decisions made (Woodward 1965, Holdaway *et al* 1975). The changing nature of Further education, driving towards greater efficiency is a contingency, upon which, a number of structural and operational changes may be based. One of these is the efficiency of communication, drawing organisations towards systems such as email. There is little research to support this position and it would require further investigation through primary research to ascertain the value of the assumption.

Mitchel *et al* (1970) highlighted the difficulties faced in measuring and defining contingency. This was furthered by Longenecker and Pringle (1978) who contested that the terms used within the approach are too nebulous to really be applicable, they lack empirical measurability. These terms include statements such as 'it all depends' and 'situational variables'. Luthens and Stewart (1977) postulated the 'General Contingency Theory of Management' which outlined that the level of performance of any organisational system can be assessed based upon the interaction of independent variables. The interaction of the environment, of which culture is a component, generates the situational variables upon which structure can be applied

Longenecker and Pringle (1978) further discussed contingency theory is built upon difficult to define statements and little guidance is offered on 'acceptable performance' within a system. Who sets the guidelines and by what measure they are assessed appears to be a matter of individual choice. The major gap identified in this study is that the consideration of effect that environment has upon the system is not considered often enough in the reverse. That the organisation has a direct effect on the environment is not considered.

Luthens and Stewart (1977) discussed that reaching a common definition of what contingency is and is not the single largest stumbling block in using the theory effectively. There is also further, detailed consideration given to the idea that the traditional view of the relationship between the organisation and the environment is not sufficient to fully allow the meaningful employment of contingency theory.

The traditional view of environmental effects upon organisational structure is reflected directly in the five forces model suggested by Porter (1979). As with the traditional contingency approach, this model faced a number of theorists who suggested that not only does the environment have an effect on the organisation, the organisation itself can play a role in structuring the environment to fit the organisation (Pralahad and Hamel 1990, Klein 2000).

Further consideration of the contingency approach was made by Schoonhoven (1981). This research asserted that there are five distinct issues with contingency theory in the form in which it was being applied. Schoonhoven (1981) asserts that the view taken in this study differs greatly from earlier work by testing the significance of the method. Whilst Meyer (1975) declared that contingency theory is widely accepted and therefore no longer controversial, the extent of the empirical support that the theory had calls into question this view. Earlier authors such as Mohr (1971) and Pennings (1992) also questioned the usefulness of the theory.

2.7.2 Issues associated with contingency

Schoonhoven (1981) suggested the following five issues with the contingency model. Firstly, it must be considered that the contingency theory is not a theory at all. It should be considered as an approach or concept as it lacks the well-developed set of interrelated propositions common to theories. This leads to a lack of clarity. Following the findings of Mitchel *et al* (1970) and Longenecker and Pringle (1978), Schoonhoven (1981) identifies ambiguity in the terms used within the theory. Statements such as 'appropriate for' and 'consistent with' do not give a solid foundation from which to make empirical judgements. From this it is clear that, if a theory is to be built that uses the underlying principles of contingency theory the terms must be clearly defined and testable.

The second issue identified is that the lack of clarity makes it difficult to test whether there is a relationship between the variables at all. A lack of direct observation makes it difficult for theorists using the contingency theory to prove the existence of the relationships they are proposing (Schoonhoven 1981). Any conceptual framework developed must be theoretically sound as well as able to withstand scrutiny in field testing.

Thirdly, Schoonhoven (1981) suggests the lack of clarity renders interactions difficult to measure correctly. Similarly the fourth problem suggests that

assumptions made initially are made upon an imprecise conceptual framework which feeds into the fifth issue that fit and performance are symmetrical. The role of the decision maker play in determining the outcome of selection made using contingency theory is still unclear (Bobbitt and Ford 1980). In terms of selecting an appropriate method of communication, the determination made by the decision maker will be key in selecting an appropriate method. Therefore, the relationship between context and outcome is tempered by the will of the individuals involved in generating the outcome based upon the information gathered about the context.

Tosi and Slocum (1984) continued the discussion around the formalisation of the components of Contingency Theory identifying the direct impact that structure, people, technology, strategy and culture have upon the ability of an organisation, or an organisational component to work effectively. It was considered that the lack of formalisation of concepts led to a reduction in the usefulness of the theory. Tosi and Slocum (1984) also agreed with the view put forward by Meyer (1975) that the theory of Contingency is widely accepted based upon early studies that present congruent sets of results. Tosi and Slocum (1984) further discussed that in order to make Contingency Theory more applicable it was necessary to clearly define the concepts and the relationships between those concepts. Effectiveness within this study was given to mean a three dimensional concept where efficiency, outcome preference from members and a socially responsible outcome are combined to provide an assessment.

Tosi and Slocum (1984) also consider the environment. In the assessment of this concept they discuss that environments exist on different scales and the assumption that a single environmental factor will affect every organisation in the same way is too simplistic a view to take. The environment also has a direct impact upon the culture of the organisations within it.

Child (1980) identified that Contingency Theory failed to include the impact of culture on the outcome of decision making processes. Tosi and Slocum (1984) identified that the cultural difference will have a direct impact on the difference in organisational and process design. A decision made using the same set of contingent variables may differ within different cultures. As such, not including culture, or relationship, as a variable in contingency theory limits the ability of the outcome to be truly situation specific.

Having considered the underlying theory of Contingency as well as the developments considered over time it is clear that Contingency Theory, although poorly defined in empiric terms, has validity. Contingency in terms of overall organisational structure as well as sub-components such as leadership and MIS design is well documented (Otley 1980, Blanton *et al* 1992, Brown and Bostrom 1994). Less well documented is the role that contingency plays in communication within an organisation.

2.7.3 Contingency and communication theory

Wiio and Goldhaber (1993) concluded that differences in communication effectiveness can be linked to the type of organisation and the composition of the workforce. Gender and education levels, as well as other demographic markers are considered within the composition of the workforce and within these the culture of the workforce and organisation comes to the fore. Internal and external constraints, much in the same as in other interpretations of Contingency Theory, act to affect the choices related to communication. The traditions, structure and cultural constraints of the organisation act to influence the selection of communication methods and content. As a result, a similar set of circumstances in different cultures may produce a different outcome. It is important to clearly define these constraints as proposed by Tosi and Slocum (1984) to help align them and produce predictable outcomes. Contingency Theory has developed to focus on the application to specific business activities and processes, especially in areas of technological development and software design (Barki *et al* 2001). Of particular interest in this area are studies considering the role of contingency when dealing with on-line related activities, especially in the area of email and communication.

Pizzutti and Fernandes (2010) sought to develop a contingency based model upon which customer satisfaction of online transactions could be moderated. Findings suggested that where the face-to-face component of retail was replaced by electronic contact, a greater degree of dissatisfaction was experienced by the customer. This dissatisfaction was primarily a result of poor interactions with the systems themselves as opposed to the retailer.

Several studies cited earlier in this literature review have demonstrated that dissatisfaction may increase as face-to-face communication is replaced with less personal methods of communicating (Hiltz and Turoff 1985, Whittaker and Sidner 1996). Other studies in this area have demonstrated that it is often the limitations

of the technology itself and not just the way in which it is used that create the limitations observed.

Pizzutti and Fernandes (2010) further identified that customers who had a positive experience of the handling and communication from retailers were less likely to experience low satisfaction in the future. Parallels can be drawn with communication theory suggesting that users who have positive experiences of using communication methods are less likely to experience low satisfaction with them in the future. Conversely, and consistent with the findings of Pizzutti and Fernandes (2010), a poor experience will increase the likelihood of experiencing low satisfaction in the future. Providing the user with the opportunity to consider past experience, both of the sender and recipient may help to mitigate the potential for a poor communication experience. Where subjective distance is low it is envisaged that the user will be able to identify these issues quite easily. Where the subjective distance is high, only an assessment of sender experience can be made effectively.

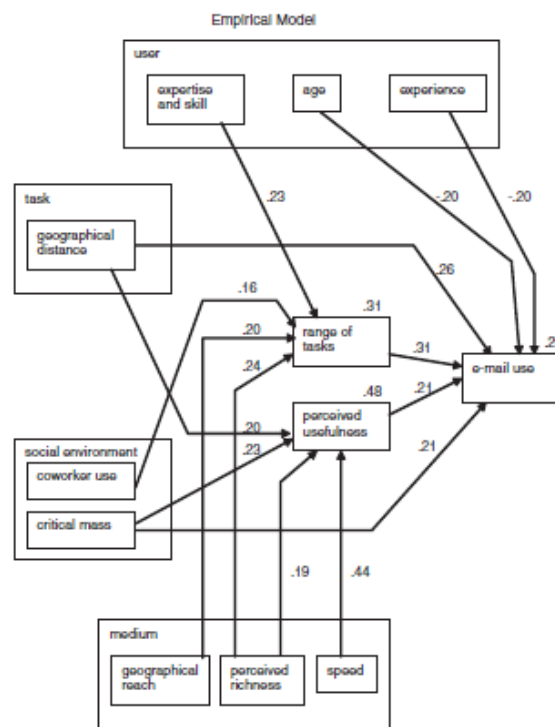
Van Den Hooff *et al* (2005) considered the effect of Contingency Theory on computer mediated communications. As Contingency Theory relies upon the idea of 'fit' where solutions are matched to situations based upon other factors, Van Den Hooff *et al* (2005) view the original MRT as being the archetypal contingency based method. The interpretation of uncertainty and equivocality lead to the suggestion that the need for more information and the absence of clear definitions are criteria by which contingency can be based. The levels of uncertainty and equivocality, are variables by which a method of communicating is selected.

This is not consistent with conclusions drawn earlier that MRT lacks the ability to generate directions based on situation specific determinants

However, Carlson and Zmud (1999) suggested that the introduction of user experience is a critical contingency in the selection of media and the perception of media richness. As with the findings of Pizzutti and Fernandes (2010) good experiences will result in better reception in the future, hence a greater perception of richness. Van Den Hooff *et al* (2005) further considers that situation is an essential component in the selection of communication media. The constraints imposed by the culture and the environment as well as user perceptions and previous activities all influence the user in the selection of their preferred communication method. Van Den Hooff *et al* (2005) generated a contingency

based model to explain the selection of email, shown in figure 2.6. Many of the factors demonstrated in the model are consistent with those suggested as being important in the selection of a communication method. However, there are no alternative forms of communication suggested based upon the outcome of the interaction of the contingencies identified.

Figure 2.6. The empirical email model (Van Den Hooff et al 2005)



The key influences on the selection of email usage based upon contingencies were identified in this study, the strongest being the perception of speed and the perception of usefulness. However, the perception that something is quick and easy is a one dimensional view. In allowing users to make a fully informed choice, based upon a depth of contingencies, as opposed to simply a breadth of contingencies may allow for a more satisfactory outcome. The study conducted by Van Den Hooff *et al* (2005) is limited as it is based upon meta-analysis and only makes use of a small exploratory study to assess the impact of contingent factors. However, it does provide a useful introduction to the considerations made in the development of a conceptual framework of selection based upon contingent factors.

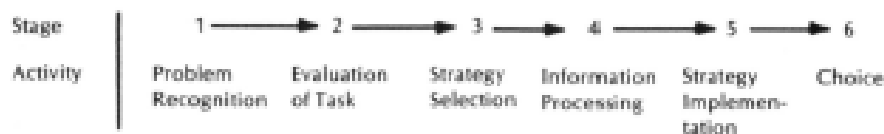
2.7.4 Use of contingency in this study

Key to the inclusion of Contingency Theory in this thesis is the idea that it can be used to base a conceptual framework upon for the selection of strategies. A

seminal article in this area was published by Beach and Mitchell (1977). It was observed that making of the strategies used for making decisions are frequently suboptimal (Slovic *et al* 1977). Aids can be produced to help users make the correct decisions in a given situation, again the usefulness of these aids needs to be questioned (Beach and Mitchell (1977)).

It is contended that the strategy used by a user to make a decision consists of two parts. A set of procedures needs to be present for the user to follow to come to the decision about a course of action and rules need to be put in place about how the results from the activity are used to make the actual decision. A graphic demonstration of this process is shown in figure 2.7 which demonstrates how the user will come to a decision using an aid. The proposed conceptual framework will help the user in stages two and three of this process by allowing them to evaluate their task and select an appropriate strategy, reflecting the work and findings of Beach and Mitchell (1977).

Figure 2.7. Individual decision making strategy (Beach and Mitchell 1977).



Beach and Mitchell (1977) propose a framework where the selection of the strategy or outcome is contingent upon the characteristics of the decision that needs to be made and the user involved in making it. It was surmised that in a given situation, a user will always choose the strategy that requires the least investment for a satisfactory solution. Beach and Mitchell (1977) showed that users will always try to make the correct decision whilst making compromises between the variables presented. This desire to be correct may be influenced by culture and should be seen as contingent upon such. The decision made will also reflect the user's characteristics, especially their knowledge and faith in the possible outcomes of the process.

The culture, so closely linked with relationship, will put pressure upon users to select strategies in a particular way. If a cultural preference is for one type of communication then that may affect the choices made by the users. If the strategy does not produce an outcome in which the user has faith or one that does not meet the needs of their input / output balance then they may either re-start the selection process or abandon it.

For a successful strategy to be developed it has been suggested in the literature review that culture and relationship be considered. The requirement for users to generate as successful an outcome as possible in the shortest time must also be made, highlighting the importance of user time as a contingency. As shown in MRT and OT, a communication method that meets the needs as shown by Beach and Mitchell (1977) may deliver a message that will require further clarification as time progresses. This may increase the requirement for increased compared to an initially more time intensive method. Giving the user the information and options to make an informed decision based upon these contingencies will be essential.

Although it provides an excellent grounding for using contingency theory to develop decision making strategies, there are some limitations to the work undertaken by Beach and Mitchell (1977). Assumptions were made to allow the model to be produced that may limit the application of the findings. For example time and money to carry out the outcome of the strategy were considered to not be an issue, similarly the user will employ a more analytical approach as the demands and their knowledge increases, effectively removing unpredictable actions of individuals as a contingent factor. Despite these drawbacks, the work has illustrated the usefulness of contingency theory in the development of a strategy selection model and will be employed to develop the conceptual framework proposed in this Thesis.

A contingency approach can be used to help develop a new conceptual framework of email selection and use. The premise that there is no one single correct method of communicating is will be central in the suggested conceptual framework. Some of the key relationships discussed, whilst focusing on the wider impact on the organisation, can be viewed at an individual level to consider behaviour on the individuals. For example, the ideas of the impact of culture and that no individual will respond to the same stimulus in the same way as another will be important elements. Generating a conceptual framework whereby decisions can be made contingently, taking into account the situation, will allow for more relevant decision making to take place in a given situation. This framework was proposed in chapter 2.9 and the value of components analysed and discussed in chapter 5.6.

2.8 Assumptions

Having explored literature relevant to the problem under study, and before establishing the parameters of the proposed conceptual frame work, it is

necessary to establish the assumptions that were made in order to frame the research context. Initial assumptions about the literature and process were explored to justify the scope and depth of enquiry to this point. These assumptions informed the boundaries of the research undertaken. Conclusions generated from the literature explored were drawn together to inform a theoretical framework. Each theoretical position was concluded to show where thinking on the theory has reached and what questions were posed by this or remained unanswered as a result. The theoretical framework brings together the concluding points from the theories explored. The suggestions made formed the basis for primary investigation to link the theory into practice and develop a framework for the management of email usage.

Limitations of the theoretical research and suggested framework were explored demonstrating that consideration of the strengths and weaknesses of the suggested theoretical framework were made, as well as the opportunities it could provide in the management of email and the threats to adoption of new practices. Finally a series of questions have been posed that have informed the lines of enquiry to assess how applicable the new theoretical position would be as a means of managing email use in the FE sector in Wales. These questions reflect both ongoing enquiry of established theoretical positions as well as gathering further information about areas that have not been explored in detail in the literature to date.

Assumptions are an integral part of developing new and novel theories in the domain of management theory (Foss and Hallberg 2014). The questioning of existing theories or assumptions require that researchers make some assumptions to help frame their research in a specific area. As such there are valid questions asked about what constitutes appropriate and inappropriate assumptions in a given situation (Bromiley 2005). Whilst there are not specific criteria upon which to base assumptions, researchers should ensure that assumptions made allow them to isolate their work from damaging situational factors by ruling things out (Foss and Hallberg 2014).

Any assumptions made below will impact upon the theoretical framework that may be developed from the exploration of current literature. Burns and Grove (2001) point out the assumptions that authors make when producing reports and articles are often not explored and discussed as effectively. Walker (2011) discusses that

any assumptions made are important in recognising the position from which the researcher is operating and the possible limitations that will be imposed. As such, the criteria of veracity and sensitivity will be used to explain the assumptions made about the literature used to inform the theoretical component of this literature review.

Veracity considers the appropriateness of a theory in the context in which the author is working (Fain 2004). Throughout this exploration of theory it has been assumed that the theories explored are an accurate reflection of the phenomenon being observed. The theories provide an adequate explanation of the practical examples discussed in subsequent chapters. The assumption has been made that the theories explored are an accurate representation of the phenomenon of email usage and management. This assumption has been made based upon identification of theoretical perspectives that are present in literature. Each theory that has been explored appears in a number of articles and other published literature on the subject of either email usage or email management.

The breadth of media explored to make this assumption includes journal articles, books, magazine articles and audio-visual presentations. Whilst other theoretical viewpoints were encountered, those were encountered a number of times across the range of media and throughout the time period applicable to this phenomenon. As such it is considered that this assumption is a valid one.

A further assumption must be made about the depth of exploration undertaken in each topic. Extensive use has been made of journal and internet media to undertake the research. Books have been included but their value is considered to be less than that of peer reviewed journals as the views they represent may be outdated. Literature published about the subject from conception to modern application has been considered from a wide range of international journals. Both focused and wider research on each topic has been undertaken to demonstrate depth of research as suggested by Foss and Hallberg (2014).

The relationship between the concepts explored also relies on a number of assumptions. Links have been observed previously in the literature and this forms the basis for current suggestions. Ongoing observations during the review of the literature have led to the linking of concepts to generate the theoretical framework discussed below. Foss and Hallberg (2014) point out that the assumption of relationships between concepts is a valid and necessary activity in the undertaking

of research. These are important as they allow links to be drawn between theory and reality by delimiting the domain of application. Having considered the assumptions that have been made in the gathering and analysis of theoretical perspectives on the subject of email communication it was possible to propose a conceptual framework based upon the literature review. Each proposed component is discussed to show how it is rooted in the research so far.

2.9 Suggestions for new theoretical framework

Through careful consideration of current and past research it has become clear that a method of selecting an alternative communication method, when email would be the primary option, needs to be based upon contingencies and take into account a wide range of factors thus addressing the criticisms raised by Ngwenyama *et al* (1997). Contingent factors have been identified through the literature review, some relating to highly specific, focused elements whilst others relate to broader concepts.

The identified components will be split into two categories. The first will deal with generic considerations which will impact upon the selection or deselection of email. Subjective distance, objective distance, scope of communication, requirements for response and time pressures are considered to be generic components which will guide the user towards a selection.

Once email has been selected or deselected, the user can then consider factors that are specific to the potential benefits and drawbacks of the selected method. If any of the decisions results in the method being deemed inappropriate then the user will be taken back to stage one to reconsider their options and look at alternatives. As the options progress the user will be offered alternatives that represent variations upon the theme that they are considering at that time.

2.9.1 Forwarding of Messages

Although not directly identified through the literature, attention has been drawn to it through anecdotal evidence and observation. Messages are often sent and then forwarded again by others without taking the time to consider whether they are repeating a message to a previous recipient. Repetition may be a cause of overload to for the recipient. This component in the conceptual framework allows the user originating the message to consider whether the recipient has been copied in to the same message previously. This is only relevant if the message content is a forward of a previous message. The user needs to be offered the

opportunity to consider whether the recipient was included in the original address box of the original message. If so the user is asked to stop and not send the message at this point.

2.9.2 Relationship – Subjective Distance

Relationship and culture are essential within a contingency conceptual framework relating to email, and communication in general (Lee 1991, 1994), a link was demonstrated between the relationship between users and the richness of the communication that they shared. This viewpoint was also earlier considered by Fulk *et al* (1990) and Contractor and Eisenberg (1990).

A less rich means of communication could be made 'richer' if the relationship between the users is good. The concept of relationship is built upon the idea of trust between users and culture. Shared ideals, goals and objectives imply a higher level of trust and are present in shared culture (Steffen 1999). The review of culture showed that distinct sub-cultures can exist within an organisation (Manley 2000) and individuals can be a member of both the overall culture and sub-culture with their primary loyalty being to the smaller subculture. Subjective distance is a marker either of a shared culture or a strong relationship, whether it is personal or professional. Either of these help to address the issue highlighted by Rutter and Stephenson (1979) that method that do not involve personal contact are 'cueless'. By considering the culture or relationship the cues become less important as there is a shared understanding of language, meaning and construction, thus making the communication richer.

An assessment of relationship will be required by users with the outcomes either being a high or low level of subjective distance. The lower the level of subjective distance the greater the assumption of either a shared culture or a good relationship. This choice may relate to communication with a close colleague or a member of the same department. It may also relate to communication with a person with whom the user has little knowledge in a similar role in different organisation. The higher the level of subjective distance, the lower the assumption of a shared culture or positive interpersonal relationship. This may relate to communication with someone from a different role or from outside of the organisation. Important caveats when considering this are that whenever a user is communicating with a user from within their own department they should assume a low level of subjective distance as the presence of a shared culture can be

assumed. Additionally when communicating with more than one person, in a group situation, the assessment should always be based upon the recipient with the highest subjective distance.

2.9.3 Objective / Physical Distance

The physical location of the sender and recipient is considered to be of high importance as well. A high physical distance will negate the possibility of certain methods of communication, such as face-to-face communication, in the majority of situations. Young (1995) concluded that in a larger organisation face-to-face meetings on a regular basis are not feasible. In these cases using a communication method such as email is a suitable alternative as it becomes the next best option.

However, Trevino *et al* (1987) had discussed that just because a large physical distance exists it does not automatically mean that a less rich means of communicating should be considered to be the most effective in a situation. The possibility for synchronous long distance communication, that is widely available, is the telephone and as such this will be considered as a viable alternative to email communication.

The physical distance between individuals will have a bearing on the methods of communication that may be used. Balancing objective and subjective distance issues may help to alleviate the concerns of Trevino *et al* (1987) as that individuals working in similar departments in different organisations may share common cultural markers. For example, a business department in one college may share common cultural markers with a business department in another college. These markers may include shared language, academic or vocational backgrounds and experiences with students and assessments. As such the physical distance may be mitigated by the subjective distance making a less rich method of communication an appropriate option.

The user will be asked to assess their physical distance from the recipient of their message. Guidance on this will be taken from the findings of Stevens and McElhill (2000) who concluded that when users share a similar geographical position then there is no payback for using less rich means of communication. In this context, the campus will be considered to be the geographical location with some FE colleges having multiple campuses. Whilst this is again a subjective assessment it

must be stressed that the sharing of a physical location should be considered to be of low physical distance.

2.9.4 Group or Individual Communication

One of the major benefits of email is the ability for a user to send the same message to a large number of recipients with very little increase in time spent over sending the message to one recipient. This increase in reach often makes email the most attractive method despite the potential for it not to be the most effective method of communicating the information (Stevens and McElhill 2000).

In order to not limit the usefulness of the proposed conceptual framework, the option is included for the user to decide whether they are undertaking group or individual communication. As the purpose of the conceptual framework is to guide users away, where it is appropriate to do so, from selecting email the option to use face-to-face meetings is suggested. The option to use the telephone is disregarded in group communication situations as conference calling systems are limited.

2.9.5 Time Constraints – Present and Future and Immediacy of Response

The components of current, future time constraints and immediacy of response will be considered in concert as they directly impact on one another. Time saving benefits been discussed by a number of authors since the popularisation of email as a means of communication such as Trevino *et al* (1987), Kluger and DeNisi (1996), Russell and Cohen (1997), Holliday (1999) and Yu and Yu (2001), Panteli (2001).

Where a user may be time constrained Trevino *et al* (1987) suggests that it is acceptable for the user to undertake the communication via the use of email. This is supported by Beach and Mitchell (1997) as the decision represents a contingent decision making process. The influence of culture and the desire of the user to achieve their goal in the shortest time frame possible using the least effort may lead to email being considered to be the best means of communication in a situation where the user perceives that they do not have much time.

This perception of time can be interpreted in a number of ways. The user may physically have to send a message and engage in communication in a very short timeframe as they have to be somewhere at a given time. Additionally the user

may be subject to time contingencies where a task needs completing in a given timeframe and communication must occur.

Users will therefore be asked to consider future time requirements when deciding whether or not to use email. This concept is the product of consideration of both MRT and OT. As email may be considered to less rich than other communication methods (Daft and Lengel 1986, Newberry 2001) there is the potential for ambiguity in communication where a high level of equivocality exist. In essence where the communication is on a complex topic there is a greater potential that the recipient of the information may need to ask for further clarification from the sender. This would increase the load on both the sender and recipient were this communication to take place via email (Jackson *et al* 2003).

To mitigate against this the user is asked two questions. 'Are you constrained by time currently' asks the user to consider whether or not they have constraints on their time at the point of conception of the communication. If the user responds that they do, thus potentially encouraging them towards the easiest method, they are asked if they will have time to clarify later on if the recipient requires it. By asking the two questions together the aim is to encourage the user to consider current and future pressures. Spending more time at the point of conception may save time in the future. Similarly if the user would not have time to invest in clarifying points they are directed towards rich means of communication as recommended (Lee 1994).

The purpose of the communication may be to allow the recipient to make use of an extended reflection period before responding to the sender, in these cases an asynchronous means of communicating will be acceptable (Plaisent and Bernard 1993). Where users report that they do not have current time pressures the issue of future time pressure is negated and the user is guided towards the selection of a richer means of communication such as Face-to-face communication in the first instance. Whilst this follows the findings of Daft and Lengel (1986) the process of selection only directs users to this option when it is considered to be the best in the given circumstances. Immediacy of response, whilst similar to the issues of time constraints, is slightly different. An immediate response may not be required, indeed the issue being discussed may require the recipient to undertake an amount of research or preparation before responding to the message. This

considers the potential benefits and drawbacks of email as an asynchronous means of communication.

In undertaking this, the recipient can be saved time and pressure as well as reducing load on the originating user. In an asynchronous system it is not reasonable for a sender to expect the recipient to respond instantaneously or quickly. By including the phrases 'get back to me as soon as possible' the originating user is also dictating the priorities of the recipient. These are markers of email overload as suggested by Ingham (2003) and Dabbish and Kraut (2006). Once again, the potential for reducing email load is demonstrated as a message that would benefit from an immediate response can be directed through a synchronous means of communication, reducing time and pressure.

Whilst the original findings of Daft and Lengel (1986) and subsequent considerations of Newberry (2001) illustrate more, only three options for email alternatives should be considered. Face-to-face communication, telephone communication and email communication are the only possibilities. Unaddressed communication is disregarded in this conceptual framework. It is assumed that the user has a target for their message. This does not necessarily mean that the user knows the recipient but that they at least have a context within which the communication is taking place. In the FE context, in which the conceptual framework will be proposed, there should be no requirement for unaddressed communication.

Face-to-face communication is intended to be read as the undertaking of a physical meeting. Net meetings and video conferences are also potential methods of undertaking limited face-to-face communication. The reason for the non-inclusion of these is that they are not as widespread as other means of computer mediated communication such as email. Additionally there is often greater planning involved in organising a video conference or net meeting than there may be in gathering a group of people who are located near one another. As such these methods have not been considered as valid alternatives. Once the decision to select or deselect email has been made, the user will need to consider the appropriateness of the method using a separate set of contingencies. These are discussed below and include comfort level, clarification of complexity, sender and recipient behaviour, suitability of content and the need for a written record to be retained.

2.9.6 Comfort Level

Assessing the comfort level of the sender and recipient is an important component in ensuring that the communication will be successful. This follows the work of Beach and Mitchell (1977) who considered that ease is an important factor in the use of a communication method. Therefore if a user is not comfortable with the use of the selected communication method then they are less likely to use it successfully.

This also follows the research undertaken into the levels of literacy possessed by users. Where the user considers that they do not possess the required level of literacy then communication may be hindered. Similarly where a distorted view of literacy is present a complication will be introduced to the process. Panteli (2001) considered the difficulties that different members of an organisation had structuring emails finding that it is conceivable that along these lines some people may find difficulties engaging in face-to-face meetings or talking on the telephone.

Culture also has a role to play as well in so far as the shared culture within the department may favour a means of communication over another. Communication may be compromised if the communication method is not considered culturally acceptable.

Additionally, noise may be introduced if the correct medium is not chosen. Shannon and Weaver (1949) considered that noise is a result of poor communication method selection and further research showed that noise as a concept can be introduced at any point in the communication activity. The relative comfort of the user may have an influence on noise and interference. If the user selects a method that they are not comfortable with then it may be considered that it is not the correct method even if other considerations suggest that it is. In this case noise may be introduced having a detrimental effect on the communication process. If the user responds that they are not comfortable then the user should consider a different method by reconsidering the other situational options available to them.

2.9.7 Clarification of Complexity

Clarification of complexity is very similar to consideration of future clarification. The user must decide whether they feel that the method will give them the opportunity to clarify any complex issues that may be present in the communication. The issue

of clarification is discussed by Seshadri and Cartenson (2007) and Stevens and McElhill (2000).

The need to consider whether a message needs clarification also links to the issue of comfort levels. If a user feels that they are comfortable using a means of communication but is not sure whether they would be able to provide the necessary level of clarification via that method then potentially the method would not be suitable for the user in that situation. A number of factors may impact on whether the user was comfortable and therefore able to provide the required level of clarification.

2.9.8 Sender / Recipient Behaviour

The issue of sender and recipient behaviour is important in the success of Email communication. This is a construct of theory found in both Organisational Culture and Email Overload literature. A number of authors discuss the importance of the management skills of the recipient (Denning 1982, Hiltz and Turoff 1985, Whittaker and Sidner 1996, Whittaker *et al* 2006 and Hurst 2007). However, limited evidence was also found to support the consideration that the actions of the sender are equally important.

The actions of the sender are considered to be important as, whilst the size and time management of the inbox is the concern of the recipient, the sender is the one who populated the recipients inbox. It is for this reason that the behaviours of both the recipient and the sender need to be considered. Whilst this theory has primarily considered email it is possible to apply the findings to all types of communication. It is possible that there are those who simply do not answer the telephone in order to avoid incoming communication or who actively avoid meetings. It is recognised that the sender may not be aware of the habits of the recipient, especially where there is a high subjective distance between them. In this case the sender may only assume that the recipient is capable of managing the incoming communication.

The user needs to explore their habits in relation to communication methods. Do they prioritise their needs over those of the recipient? If this is the case then user may be guilty of overusing the method of communication which may reduce the effectiveness of the method (Ingham 2003). This is only supposition at this point but it is asserted that overuse of a communication method may result in desensitisation in the recipient and make it harder for the communication to take

place effectively. The sender also needs to consider the load of the recipient such as whether the recipient may have received the message from another source. This is a common issue identified in email communication. Other considerations such as will the recipient respond to the media used, are they overloaded, have they experienced the symptoms of overload as suggested by Ingham (2003) one of which is withdrawal from that method of communicating. By considering this the user can gauge whether the mode of communication will be responded to in a positive manner by the recipient.

2.9.9 Suitability of Content

The previous contingencies have generally considered the behaviours and preferences that have led to the selection of the communication method. This choice asks the user to consider whether the content that needs to be communicated can be done so in the best possible way using the method selected and that the content is appropriate for the method selected. For example King and Xia (1997) concluded that users did not believe that email was the right means of communicating personal information. If the message contains personal information or is to be used as a reprimand then a different form of communication would most likely be appropriate in this situation. For example, Kurtsburg *et al* (2006) found that e-mail was not the best means of generating feedback from staff, especially on sensitive or personal matters. If the message contains restricted material then a method less likely to leave easily accessible records of the communication may be the most appropriate.

Failure to consider the nature of the content of the communication may cause the introduction of noise and reduce the effectiveness of the communication method. Ensuring that the content is suitable is a very important part of allowing for effective communication. Examples of this were observed by Sussman and Sproull (1999) who discovered that communication sent via e-mail tended to be altered less to make it more palatable to the recipient. In this way the sender's uncensored feelings may come through more easily potentially leading to misunderstanding by the recipient.

Although not numerous there are also examples of where bullying activities have been observed as a result of unsuitable content in email messages.

A number of researchers such as Glendinning (2001), St Amant (2001) Fieldman and Lahlou (2004), Baruch (2004) and Lim and Teo (2009), explored the issue of

bullying via email and the impact that it has on worker's productivity, work satisfaction and general performance. The issue of email bullying was brought to public attention by the jobsite reed.co.uk who conducted a survey of 3400 users about email bullying in 2003. This poll identified that managers were more likely to be targeted by bullying emails but did not explain why this should be the case.

Fieldman and Lahlou (2004) investigated the links between e-mail bullying and blood pressure demonstrating that an e-mail designed as a reprimand can be perceived as an aggressive and bullying communication simply by the way it is worded. Some of this pressure can be attributed to senders lacking an understanding of the etiquette involved in e-mail. For example the use of capital letters indicates shouting. In addition the way the e-mail is addressed.

The issue of deliberate misuse of e-mail for the purpose of bullying others was addressed by Glendinning (2001) who found that e-mail bullying had such an effect on workplace dynamics that it altered the organisational effectiveness to such a degree as to damage strategic advantage. St Amant (2001) discovered that the recorded nature of e-mail has little effect on the use of the medium to bully workers. With many email policies explicitly stating that message exchanges are stored and may be accessed in the event of disciplinary it is unclear why individuals would expose themselves to such actions knowingly. This calls into question the level of understanding about email management and control.

It is extremely difficult to ascertain the extent of bullying via e-mail. Studies have proven inconclusive in this area and generally conclusions have tended towards a lack of understanding on behalf of the sender and a distorted perception on the behalf of the recipient (Fieldman and Lahlou 2004). This suggests that there is potential for further exploring the extent of email bullying within modern organisations. Baruch (2004) concluded that e-mail will exist as another conduit for the carriage of abusive or bullying behaviour. The link between this and the perceived effectiveness of the e-mail medium was also made. As with any means of communication, it is open to those who wish to abuse it. This was identified very early on in email development by Kiesler *et al* (1984) who discussed that the social anonymity of e-mail communication may lead to those who would otherwise not commit this sort of behaviour bullying their peers.

Email bullying may constitute another factor that contributes to overload (Baruch 2004) and appropriate identification of instances and needs to take place.

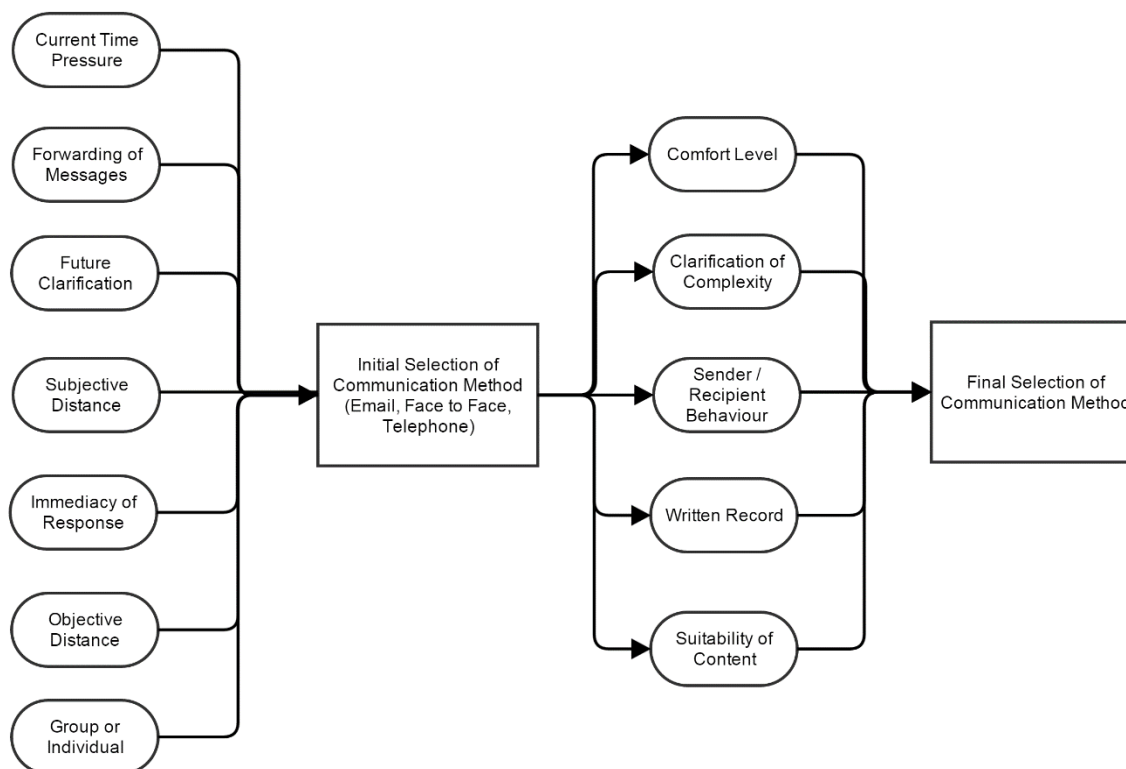
Guidance on the nature of appropriate content for communication methods should come from the organisation itself in the form of a communications policy or guidance document. As stated previously, the guidance current given to users in FE establishments in Wales will be considered as part of the first stage of primary evidence gathering.

Within each permutation of stage two selection the outcome for suitability of content considerations vary. Each takes into account the earlier contingencies identified in stage one and proposes a slightly different course of action based upon these. For example, alternative written methods will be suggested as suitable alternatives for email

2.9.10 Written Record

One of the biggest advantages of email, as pointed out by Collins (1996) is the ability to maintain a written record of communication activities for future reference. This advantage was also considered by Seshadri and Cartenson (2007) who believed that maintaining a written record of communication would be a definite advantage. There are situations where a written record of communication activities may be of benefit such as a follow up to a face-to-face meeting to share action points or as a written record of a formal discussion. There can be little doubt that email is arguably the most effective method of conducting this follow up as it allows for ease of storage, it can be easily found and shared further. As a result of this the user, during stage 2, will be offered the choice to consider whether a written record of the communication is required. Having considered these contingent factors and demonstrated how a two stage, multidimensional conceptual framework may be addressed, figure 2.8 below provides a graphical representation of the theoretical basis for the proposed conceptual framework. The conceptual framework has been generated using the conclusions drawn from the literature review and will form the basis of primary research component.

Figure 2.8. Proposed multi-dimensional contingency conceptual framework



2.10 Strengths and Limitations

The contextual framework has been developed through the analysis and evaluation of existing literature. As such it exists purely as a theoretical concept at this point. Therefore, it is important to consider the strength and weaknesses of the suggested conceptual framework to both demonstrate the boundaries within which it will be applied and to further consider the assumptions made earlier.

A strength of the conceptual framework suggested is that it allows for situational determinants to be used to make a decision following suggestions made by Van Den Hooff *et al* (2005) who presented a meta-analysis derived model to predict email use. Where differences are found between the proposed conceptual framework and previous work is that other contingency based models such as Van Den Hooff *et al* (2005) do not provide for the selection or deselection of email and focus on the predictors associated with use. The conceptual framework is a multi-faceted tool that is not a one size fits all approach to selection of a communication method. As a two stage process the contingent factors are split between those that would inform an initial selection of email and those that would need to be addressed once a method had been selected either to confirm or refute the selection made in the first stage. The conceptual framework represents a more

comprehensive, whilst greatly simplified, approach to decision making about email use.

A further strength of the proposed theoretical conceptual framework is the range of literature, themes and approaches employed to derive the key situational determinants that form the basis of the conceptual framework itself. There are some limitations to the proposed conceptual framework to be considered. The use of the conceptual framework does require subjective assessments to be made by the user in order to make a decision making it difficult to develop a consistent approach to application. However, communication is necessarily a subjective activity and trying to consider it in too restrictive a way does not allow for the essential human influence to occur (Ngwenyama *et al* 1997). Guidance can be produced on the implementation of the conceptual framework but successful use would need to be measured on an individual basis which would be time consuming and costly to achieve. How users interpret the components or guidance on use is not in question in this research but may form the basis for future research.

The conceptual framework itself focused entirely on the use of email and the selection or deselection of it. Newer computer mediated communication technologies such as net conferencing and instant messaging exist but have been excluded from this research. Therefore, the proposed conceptual framework will be narrow in scope but as email represents a significant method of business communication and that issues have persisted for a 30 year period it is considered that limiting the scope of the conceptual framework will still have positive implications for users. Finally, the conceptual framework itself has been generated through a process of meta-analysis. At present it exists purely as a theoretical construct. This can be mediated by undertaking primary research to assess the potential value of the conceptual framework. Before implementing the conceptual framework it is necessary to test the importance of the components included to ensure that it will have practical validity.

2.11 Developments upon and differences to other approaches

Having developed the theoretical framework, it is essential to consider other authors that have made efforts to explain email usage or implement systems to tackle email usage within organisations. This is an important exercise as it enabled research to be designed that would differentiate the final conceptual framework from others that have been developed.

There are similarities and differences to the approach taken by Van Den Hooff (2005) and the conceptual framework proposed in this chapter. Both are multidimensional and deal with the selection of email to communicate in a given situation. In both cases, key factors such as speed, reach, user behaviours and current usage are considered in relation to their impact on the selection. However, the model proposed by Van Den Hooff (2005) only applies a single stage consideration of email prediction and does not provide users with the opportunity to select or deselect the approach.

Van Den Hooff (2005) does provide a good explanation of the importance of various multidimensional factors in selecting email. The proposed conceptual framework is more effective as it can be used to help the user select a more suitable means of communicating when the factors are considered in relation to one another rather than in isolation.

Vidgen *et al* (2011) proposed a multidimensional approach to developing a framework for email management. The approach stressed the use of a practitioner toolkit comprising technical / efficiency, understanding / effectiveness and emancipatory / ethical considerations/. Overall, the framework stresses the ability to save time as being the key component in improving email usage. It is through this non-targeted approach that money will be saved due to a reduction in time spent.

Similarities can be drawn in the theoretical grounding used to base the conceptual framework upon, specifically the findings of Lee (1991, 994), Ngwenyama (1997) and Ingham (2003) However, the conceptual framework proposed in this chapter differs significantly from the one proposed by Vidgen *et al* (2011). No differentiation is drawn between effective and wasteful use of email, the focus of Vidgen *et al* (2011) was the issue of overload and the effect that it has on the relationship users have with email systems. The proposed conceptual framework, whilst considering overload as a factor, recognises that a wholesale reduction of email usage, without targeting the elements of waste, may not effectively eliminate the cost issues identified by Vidgen *et al* (2011).

2.12 Literature Review Conclusions

Having considered the literature on the topic of email use this sub-chapter will conclude and summarise the key points which will lead to the development of research questions needed in order to assess the potential relevance of the

proposed conceptual framework. It was necessary to explore the point to which the theory surrounding email had developed. A number of different approaches were reviewed in order to provide the most complete review of current theory related to email usage. The aim was to explore all of the different facets through which email has been viewed since its introduction as a means of communication and to combine these to develop an approach to help manage email usage.

The assumptions upon which the literature review is based ensure the veracity of the findings. The theories explored were assumed to be representative of the phenomenon being explored based upon their appearance in a number of published works. A wide range of media has been used to generate the analysis of the literature and an appropriate time frame selected. With multiple appearances across a wide variety of literature from 1982 onwards, the assumption that issues relevant to the phenomenon have been covered is valid.

The assumption about depth of analysis is valid based upon the variety of literature explored and the cross referencing made by authors within articles and books used. In addition, a number of assumptions were made about the links between concepts, some of these links are present in existing literature but others are not. It is necessary to postulate new links in order to further the understanding of the subject and as such a number were argued during the literature review.

The first set of conclusions to be made will consider MRT. It was assumed, prior to the exploration of the theory it was considered that Media Richness is of importance due to the wide acceptance of the recommendations that come from the theory in modern communication practices. It was also discussed that a wide body of work, further considering the original research, was unable to, at best, fully support the findings of the original research.

The central assumption of MRT is that ambiguity and equivocality negatively impact upon the ability of two people to communicate effectively. Importantly, ambiguity is caused by ineffective information and equivocality is caused by poor choice of transmission method. As equivocality differs then so must the means by which communication is undertaken. It is this central position that lead Van Den Hooff *et al* (2005) to suggest that the original MRT is the embodiment of contingency theory and therefore that a wide range of factors must be taken into consideration when selecting communication methods other than just those discussed in MRT.

The largest criticism of MRT was that it ignored the role that individuals have in the communication process. Ngwenyama (1997) discussed that ignoring the role that the users play in selecting media effectively rendered the findings of the original authors useless. Contractor and Eisenberg (1990) had earlier discussed that the methods used by the original authors stressed the views of the positivist perspective which completely negates the role of individuals, their views and opinions. As such the differences occurring when people use different communication media can only be negative.

This view does not allow for the impact that users may have on the selected media. For example, it may be the case a less rich means of communication, as suggested by MRT, could be considered richer as it suits those that undertake communication using that method. The original theory does not allow for this consideration. As such, without the input and decision making process of individuals, the original MRT should not be considered contingent as it explicitly ignores one of the greatest contingent factors in social science, individual behaviour.

If the behaviours of individuals are considered then the analysis of equivocality in a given situation cannot be made without considering the impact that individual behaviours and opinions may have upon the decision. One of the biggest potential impacts is that of the relationship between the individuals engaged in communicating. This was explored in depth in the primary research phases and can be seen in chapter 5.

Lee (1991, 1994) considered that relationship has an essential role to play in the decision of which communication media to use. As the perceived relationship increased between individuals then methods that may have previously been considered to be of low Media Richness may be considered to be richer. Whilst exactly what constitutes a good relationship is not fully discussed it is possible to infer what components of relationship impact upon richness. It is considered that less rich methods of communication lack the cues that richer methods possess. Many of these cues come from the individuals such as tone of voice, body language, reactions and the ability to respond to these reactions and clarify point effectively. Less rich methods are considered to be 'cueless' as suggested by Rutter and Stephenson (1979). A good relationship replaces these cues with experience and the ability to pre-empt responses. As the individuals involved know

one another the recipient is able to make assumptions about meaning that is not conveyed well in less rich methods of communication.

Whilst relationship is clearly an essential mediating factor in media richness little is discussed about what exactly constitutes a good relationship between two individuals engaged in communication. However, with relationship now included, it is clear that the application of a one size fits all method of selected a communication method is not appropriate. Results relating to the constituents of good working relationships can be found in chapter 5.3. Relationship is not the only factor that is demonstrated in the literature as potentially having an impact on communication effectiveness and therefore selection. Physical distance and time were also considered to be tempering situational determinants when considering the richness of email. Trevino *et al* (1987) considered that in situations where available time and distance were an issue then email may well be a better method for reducing equivocality. Distance would negate the possibility of using face-to-face communication to communicate. This would leave either telephone communication or a form of written communication. Email would allow for the distance to be bridged easily. Therefore, in this situation the richness of email when compared with other means of communication must be considered to be increased.

It is not just over a large distance that causes face-to-face communication to be impractical, large organisations may also find it difficult to encourage such communication successfully (Young 1995). This links with time restraints on those communicating. If time is limited then conducting a face-to-face meeting may either be impractical or may be carried out in such a way that actually increases the level of equivocality. Email may be the best option in these circumstances and therefore must be considered to be richer in that situation.

Dennis and Kinney (1998) and Panteli (2001) considered email communication in relation to others. By testing it in real situations it was discovered that email was no less effective at reducing equivocality than other means of communication. Email, as a lean communication method, was seen to be effective where care was taken to construct the message so as to include text based cues where possible.

Further to this Kluger and De Nisi (1996) and Panteli (2001) considered that the asynchronous feature of email actually allowed for a greater reflectory period than face-to-face communication which could reduce needless communication and

streamline the information sent. However, later research such as that conducted by Seshadri and Cartenson (2007) continued to consider the negative aspects that a lack of emotional cues and immediacy of feedback brings. Having considered the findings of the research into the literature it is proposed that the shortcomings of the original position postulated by MRT allow for greater exploration of the concept. The clear situational factors that are missing from the original model are those of speed, distance and time. Speed considers the asynchronous nature of email communication and considers that in given situations it may be a positive and in others may have negative impacts. It is incumbent upon the user generating the message to consider whether it would be of benefit or not.

Collins (1986) pointed out that although e-mail could be an almost instantaneous method of communication, in terms of delivery to the recipient's inbox, it relies on the recipient opening and reading the message. Unlike a telephone call which requires two people to operate synchronously allowing immediate communication, an e-mail can be ignored, forgotten or kept until later. In this way, the major benefit of speed that was considered by early supporters of e-mail systems such as Bengston (1980) can work against an organisation with important e-mails going unread for whatever reason. O'Kane *et al* (2007) viewed that the 'one too many' asynchronous method of communication provided by email is a big advantage. Dawley and Anthony (2003) point out that this method allows for a reduced succession of unsuccessful communication events between colleagues in organisations.

Plaisent and Bernard (1993) observed that far from being a drawback, the ability for the message to be received even if there was no-one there to read it was a positive point. Messages could be read as time allowed rather than, as in the case of face-to-face or telephone communication, creating a disruption by placing the demands of the communication originator over the priorities of the recipient.

This view is also adopted by Lucas (1998) who discussed that the effective use of email as a management tool may encourage fewer distractions caused by interruptions resulting from telephone calls and meetings. The issue of telephone interruptions is also considered by Sillince *et al* (1998) who suggested that email is essential in reducing telephone tag, a situation where individuals fail to make contact using the telephone. Sproull and Kiesler (1991) identified that up to 70% of telephone calls fail to reach the intended target. As a result of this, Sillince *et al*

(1998) concluded that email should and will replace the synchronous nature of the telephone call with an asynchronous email communication as the message will always reach the recipient at some point. However, Sproull and Kiesler (1991), Plaisent and Bernard (1993), Lucas (1998) and Sillince *et al* (1998) do recognise that telephone or face-to-face communication ensures that the time between enquiry and response is reduced and therefore decision making is faster. This appears to contradict the initial findings shown that the telephone will be replaced by increasing levels of email communication.

The benefit to managers of being able to respond at their leisure is not extended to all staff as rapid responses were expected in a study conducted by Romm and Pliskin (1999a). This allowed for the potential for a system of communication that only allows for control. Romm and Pliskin (1999a) showed that e-mail communication can exacerbate the differences between managers and employees leading to the medium being used to manipulate, control and coerce which are inherently one way forms of communication. Plaisent and Bernard (1993) finally concluded that, from the point of view of managers, e-mail was effective; it was a preferable method of communicating as it increased manager efficiency by around 10%.

A further speed advantage considers the ability to send messages over a long distance almost instantaneously. However, it is no quicker than using a telephone to transmit the same message and assumes that the recipient will have the time to respond appropriately. Time also considers the limits placed upon the user generating the message. Is there time to explore a richer means of communication bearing in mind that in order to transmit the required cues, an amount of time will need to be dedicated to producing the message.

Distance considers two factors, physical and conceptual distance. Email can help users to bridge a large physical distance and to deliver the message to a number of people simultaneously. As such it is a richer means of communication in a given situation. Measured against the issues of speed, the user must consider whether another means of communicating would be more effective. The issue of distance must cause the original scale of richness to be altered as face-to-face communication will no longer be an option and so other means of communication must be elevated in their relative richness.

Culture has been considered as playing an important role in the communication process as it forms a central part of relationship building. Individuals who share cultural markers such as shared ideals, stories, language and events will exist within their own cultural boundaries. Within theories of organisational culture this is important in defining the components that set organisations apart. However, it can also have an important impact upon the communication process as expectations, language and approach may differ in these cultural groupings.

It was identified that within the Welsh FE sector there are defined roles and that these may have different approaches to communication, especially in the use of email. The prediction of the presence of role culture is based upon self-reporting from colleges, differing pay scales and differing contractual terms, conditions and obligations. Under the theory of role culture, each is distinct, playing a specific role within the organisation. Due to this distinction, it is suggested that communication between roles will suffer due to a lack of cultural similarity. As a result, the way in which roles use email may differ. In addition to the identified roles it has been asserted that smaller subgroupings exist in the form of specific departments and jobs within the role. Due to specialisation it has been suggested that cultural differences in email use may exist between these groups as well. Culture has also been discussed in relation to the role it plays in the development of good working relationships. Whilst this is a difficult concept to fully define there appear to be certain markers that enable identification of good working relationships. The importance of culture was analysed and discussed from a user perspective and can be seen in chapter 5.2.

Effective communication has been discussed as being an important element within working relationships. This acts to strengthen the existing relationship based upon shared cultural groundings. The existence of the relationship in itself will help to enhance the communication process and shared understandings will lead to more effective use of email communication.

There is a tension between good working relationships and role culture in that roles tend to form their own distinct cultures which will make it hard to develop working relationships that rely upon shared cultural understandings. It is therefore necessary to explore further what users perceive to be as markers of good working relationships and see if this leads to the identification of wider concepts that can be linked to enhancing the use of email.

The final cultural examination focused upon technological development and culture. There is a distinct relationship between the two identified in this discussion and there is a confusion between which of the two leads the other. Early discussion of this concept shows that organisations possessing the appropriate culture would embrace technological change effectively.

However, as technological shift increases and the imperative to adopt shifts from a useful addition to an essential part of practice there is confusion as to whether technology actually drives the culture of the organisation and they are no longer fully in control of adoption as the process has been set in motion and cannot be stopped. Organisations are caught in a cycle of upgrades and catch up with competitors that goes beyond the early open culture of technological adoption.

This issue is worth exploring in the research as it does suggest that losing control of the choice regarding technology may negatively impact how it is received within the organisation. In the case of email this may negatively impact upon the efficacy of its use.

All of the cultural considerations made link into the suggested concept of subjective distance. Subjective distance considers the relationship between individuals who are communicating. As a good relationship implies a degree of shared language, emotional attachment and presence of cues without actually being in contact it allows email to be considered a richer means of communication. Therefore the subjective distance between individuals may be considered to be shorter if their relationship is better. This distance may supersede physical distance as a consideration as relationship does not necessarily require geographical reference points to exist. Exactly what constitutes a good and poor relationship should be explored in greater detail in the primary data gathering phases.

The final consideration is time. Email is a speedy means of communication insofar as messages are delivered to an inbox almost immediately. As such the larger physical distances can be bridged easily. However, the speed is then dependent upon the recipient reading and replying to the message. As this cannot necessarily be relied upon users should consider that email is asynchronous and despite the appearances of immediacy may take longer than expected. Relationship can temper this as awareness will be present as to how quickly a recipient may respond.

Where quick responses are not needed then email may be appropriate as it serves the time constraints placed upon the sender of the message by allowing them to send the message when they have time to rather than coordinating face-to-face meetings. However, a consideration not made here, but that is explored further in the theory about email overload, is that the sender of the message must consider whether the recipient is likely to need further clarification about the message content and whether they may have the time in the future to deal with this or whether their time would be better served meeting or speaking on the telephone to deal with questions there and then. At this point relationship can clearly be seen as an important factor in selecting a communication method to reduce the equivocality present in a given situation. The conclusions show that relationship appears to mediate a number of other issues relating to email use. The value of relationship is also undervalued (see chapter 5.6) and will benefit from greater exploration.

2.13 Further Questions to be asked based on work so far

The literature review has explored topics relevant to the proposed area of enquiry and a new conceptual framework has been developed to help address issues that have been identified. Based upon this exploration there are questions that will need to be asked. Each will be explored and will form the basis of the research questions listed in chapter 2.14.

The impact of culture, especially role culture, on the use of email has been suggested as well as the role of working relationships. These will need further exploration to see whether or not they impact on email use and what this means to users. Demographic data will also need to be collected as there is evidence to suggest that employment role may have an impact on email usage. By collecting this data the results from other questions can be viewed in this context to explore the differences and similarities. As the proposed conceptual framework is designed to work across the sector, understanding the idiosyncrasies of different working cultures will enable supporting training to be tailored more effectively.

Relationship has been discussed as an important mediator in email effectiveness. How users consider the needs of others when using email needs to be explored as does the actual definition of relationship as there is little discussion in the literature about what constitutes a good working relationship. Generating a user based

definition of good working relationships that takes into account the impact of role will increase the relevance of the output of the study.

The perceptions of the benefits and drawbacks of email are outdated and are postulated from the perspective of commentators rather than as a result of academic enquiry. Current thinking on these will require updating through the use of direct questioning.

Usage statistics to include time spent also need updating. There are numerous studies such as Markus (1994), Frazee (1996), Whittaker and Sidner (1996), Sillince *et al* (1998), Pitney Bowes (2000), Flood (2001) Lyons (2002), Ingham (2003), Davenport (2005), Bellotti *et al* (2005), Fisher *et al* (2006) Dabbish and Kraut (2006), Szostek (2011) and Huang *et al* (2011) who consider either sent or received messages and time spent. Only Sillince *et al* (1998) considers all three and only does so from a cross sector approach. Sent and received messages as well as time spent will be investigated to update current usage statistics. In addition to varying sample sizes, different collection methods were used to gather data about usage therefore an approach needs to be taken that can be adjusted to allow comparison between this and earlier work.

Increase data also need to be explored in conjunction with establishing what constitutes excessive email. Studies into email overload have shown that there are behaviours associated with overload when using email. However, as with relationship there is no way to separate the actual load from the individual perceptions of whether they are overloaded. Establishing how users may actually exhibit signs of overload is very difficult and may link to perceptions of wastage, benefits and drawbacks and usage. A set of questions needs to be included establishing whether email usage has increased to illustrate the current trends. It needs to be established how many emails users feel are manageable to be sent and received. This would enable comparison between actual usage and perceived maximums to help identify overload. This is a necessarily subjective approach as overload needs to be considered on an individual basis.

Email wastage will also be explored. Figures in terms of time and money have been discussed in the literature, for example the Phone 4U case study referred to earlier. Establishing user perceptions of waste and the causes of such can be used to justify the use of the conceptual framework to modify user behaviour as well as tackling some of the causes of overload.

Up to this point all work on email use has been retrospective. In order to develop a conceptual framework and supporting training that will continue to be useful in the future it would be advantageous to explore how users perceive that email use will continue to change. There have been examples of increases discussed in the literature along with issues such as technological barriers and behavioural issues and therefore considering how these will impact on users in the future is important.

Finally, conceptual framework components need to be assessed to ensure that they are actually considered to be important in the communications process. A series of questions will be required to establish the extent to which the component impacts on the communications process in current practice and how useful it would be in enhancing future practice.

2.14 Research Questions

Based upon the discussion of the questions still to be asked after completing the literature review the following research questions have been developed. These questions represent a refinement of the original objectives and will be answered through the use of appropriate primary data gathering techniques, the results of which are presented in chapter four, analysis and discussion in chapter five and conclusions in chapter six.

2.14.1 Research Question one What impact does culture have on email use?

2.14.2 Research Question two How do users view the constituents of working relationships?

2.14.3 Research Question three How has email use changed?

2.14.4 Research Question four Does email overload exist in the Welsh FE sector?

2.14.5 Research Question five What impact can perceived manageable maximums for email use have on the identification of overload?

2.14.6 Research Question six How do users perceive email use will change in the future?

2.14.7 Research Question seven What behavioural changes could be implemented to support change?

2.14.8 Research Question eight How relevant is the conceptual framework proposed in the literature review?

Chapter 3 Research Methods

3.1 Introduction

Having explored the literature in depth and generated a proposed conceptual framework it is necessary to develop an approach to address the research questions that have been developed. Crucially, the method developed took into account the criticisms levelled at other studies into email use whilst making the most of effective approaches. The methods used led to the gathering of the results that can be seen in chapter 4.

The purpose of this chapter is to explain and justify the approaches used to undertake this study. The research methods used to address the research questions are considered in this chapter. Epistemological and Ontological positions have been justified and the research paradigm discussed. The chosen methods have been critically evaluated to justify their use and population size and sampling is discussed to illustrate the validity of the research.

Both phases of the research are discussed to show how the content of the instruments was arrived at and the methods themselves developed ready for use. An outline of the analytical plan is discussed to demonstrate how the findings were considered and analysed.

3.2 Academic Focus

The aim of the research was to develop a method of enhancing the effectiveness of email use through a contingency based conceptual framework. The importance of relationship was also investigated. The literature review resulted in the generation of specific research questions which are shown below.

1. What impact does culture have on email use?
2. How do users view the constituents of working relationships?
3. How has email use changed?
4. Does email overload exist in the Welsh FE sector?
5. What impact can perceived manageable maximums for email use have on the identification of overload?
6. How do users perceive email use will change in the future?
7. What behavioural changes could be implemented to support change?
8. How relevant is the conceptual framework proposed in the literature review?

It is important to note that the research is focused on email activity at a professional level between employed individuals. Necessarily, the use of email

between Academics and students was not be considered as this represents a wholly different area of educational research rather than the business use of email. In addition, the study does not include other computer mediated communication methods such as instant messaging and facilities provided by social media. This is in order to limit the scope of the research and also as they are not recognised as official means of communication within the study group used.

3.3 Research Paradigm and Method

Phase one of the research employed a literature review and document search in the first instance to establish the limits of current knowledge relating to email usage in order to identify and frame the directions of the primary research element. Secondly, a large scale survey to gather up to date usage statistics as well as perceptions of increase, impacting factors on email usage, future developments and the influence of role culture on the email process was used. This approach was used as it would provide the scope and reach to engage with a large number of participants as well as the mixed approach satisfying criticisms levelled at other studies.

Phase two of the research employed in depth interviews with a random sample of users from each of the identified roles to further explore the impact of role culture as well as fill gaps left by the data collected in phase one and further strengthen the position of the suggested conceptual framework.

3.4 Philosophies – Epistemological Positions

The epistemological position adopted in this research is that of the Critical Realist perspective. Realism shares features with positivism in that there can be a scientific approach to social science situations but that this must be considered within the context of the external environment acting upon the issue (Bryman 2008). Critical Realism itself seeks to understand by identifying structures within the social world and investigating how changes those structures would impact upon the individuals involved. These structures may not be entirely apparent initially, requiring an Inductive approach stressing research into the structures before generating a theory on how to change and adapt them to generate effect. As such the Critical Realism approach is considered to be superior, in this case, to either a purely Positivist or Interpretivist approach to the problem. A Positivist approach may fail to identify the problem and offer a suitable solution whilst an

Inductivist approach may identify the problem but fail to generate a measurable outcome in an attempt to measure change within the social construct.

A purely positive approach relies upon objectivity and highly structured analysis (Saunders *et al* 2000) and would seek to explain the social world by applying order rather than exploring the nature of relationships (Burrell and Morgan 1979). In seeking to be entirely objective, positivism does not allow for the influence of subjective elements such as the influence of individual opinion. Easterby-Smith (1991) considered that in the context of business research a moderately objective approach is taken rather than a pure positivist approach. This was the core criticism of the approach taken by Daft and Lengel (1986) when considering media richness (Ngwenyama *et al* 1997). The need for statistical analysis to identify trends and explain what is being observed is superior to an entirely interpretivist approach as trends can be quantified before the reasons behind them being explored. As a result, some elements of positivism need to be borrowed. The Critical Realist perspective allows for this to be done (Bryman 2008).

At the other end of the spectrum, interpretivism relies upon the idea that in order to understand the way in which the world works it must be interpreted rather than simply observed and measured (Schwandt 1998). It allows for the development of understanding in social situations. However, with no objective measurement of observations it is not possible to measure the influence of the human interaction in social environments. In the case of this research it will not enable a connection to be drawn between behaviour and email use as little or no objective measurement would be used.

It is important to consider is that these positions are not hard and fast rules. Blumer (1954) considered that Epistemological viewpoints are loosely coupled methodological and philosophical persuasions. Blumer (1954) also discussed that they should be viewed as 'sensitising concepts, providing a general sense of direction for enquiry. The view of Blumer (1954) is being adopted by this author in order to justify a lack of alliance with one philosophical view. Where methods can be drawn that take approaches from different philosophies they will be as it is considered that this will enhance the quality and validity of the outcomes.

It is clear that the critical realist perspective was most appropriate as it allows for the borrowing of the most relevant elements of other philosophy. Far from being a weakness, Blumer (1997) identified that viewing philosophies as sensitising

concepts where a general sense of direction is provided is superior to aligning strictly with one philosophy enabling a flexible approach to be taken.

3.5 Research Approaches

This study relied upon the inductive approach. Rather than working on assumptions, ideas were developed through the research process. Deduction was not appropriate as it relies upon being distant from the phenomena being observed and relies almost exclusively upon positivist perspectives.

The nature of the problems surrounding email waste and a better method of managing email usage are not fully understood, as discussed in the literature review. Whilst a theoretical approach was postulated, it required further investigation to refine it into a tool that could then be objectively measured in the workplace. That particular exercise was beyond the remit of this investigation which sought only to build the theoretical framework into a practically useful tool by using the opinions of users. Extensive research was required to identify the limitations on email usage and explain the phenomena observed in current and past literature within the context of the Further Education environment in Wales. From this research, further ideas in this area were postulated for future study. It would be incorrect to assume a particular answer to issue being explored without undertaking the background research.

The observed phenomena are based in the actions and interactions of people and therefore it would prove difficult to ascribe a fixed set of rules to it. As there are a number of observable facets to the issue, the formulation of a specific hypothesis of what is being observed early on would potentially jeopardise the researcher's ability to gather meaningful data throughout the research and to provide a useful outcome. Detailed analysis of why the phenomena are being observed must be undertaken initially to generate a hypothesis or model which could then be tested. These criteria mean that an inductive approach which stresses context and qualitative input (Saunders *et al* 2000) is most appropriate. Views of phenomena can be developed through explanation of why they are being observed rather than simply report what is observed. As a result, more meaningful outcomes can be generated that will complement the critical realist philosophical perspective being postulated.

3.6 Ontological Positions

This research used a constructivist approach to generate change. This combined with the Critical Realist approach, which some may suggest is at odds with the Constructivist approach (Bryman 2008), provided research where both quantitative and qualitative approaches may be used to explain the structures, identify opportunities for change, measure changes, gather feedback from individuals and explain the outcomes. In direct contrast to the objectivist approach, this perspective asserts that individuals are continuously generating and adapting constructs within cultures and organisations. The two are inseparable and cultures and structures will always change as individuals change. However, Hussey and Hussey (1997) identify that the objectivist ontological position is largely positivist in philosophy and therefore scientific in approach. It has already been demonstrated that this approach has been widely criticised in other theoretical approaches to communication management.

As with Epistemological issues, it is difficult to assign one viewpoint in its entirety due to the limited explanation it presented. For example, in order for an individual to influence a culture or organisational structure, that individual must first enter into a pre-constructed environment, engage with it, learn the structures, rituals, rules and regulations and then set about generating a new order within it (Huczynski and Buchanan 2001). As such, in all established cultures or organisations one must first view them with an objectivist approach and then develop a constructivist position.

Whilst it may be argued that whilst the new member of the culture or organisation is learning, the existing members are continually adapting it, thus suggesting that a constructivist explanation is the correct one. However, research itself can only generate a snap shot of these organisations and cultures at a particular time. In order to do this, the research must seek to understand how the organisation or culture is organised and structured at a given time which negates the influence of individual changes over a longer period of time.

However, in this study, once this existing structure has been established, whether it is a result of existing structural constraints or the creation of individuals within the organisation, an approach must be generated. Individuals may be empowered to change the existing social order in relation to email usage and at the same time the organisation will be implored to change. It is important to realise that the

organisation as a whole is represented by a few individuals with the power to make decisions that will impact on the overall culture and structure imposed upon those working within it. As such they are actors who have the power of influence.

The mixed method approach used here considers the work of Marston *et al* (2005) who discussed that it should be considered a mistake to view the social world as a series of unrelated, random occurrences. By ascribing a degree of order to the events one can identify patterns and understand events better. This approach is naturally aligned with the critical realist philosophy and inductive approaches previously identified. Importantly, as discussed by Wolcott (1988, 1992), this approach will allow for the variety that is necessary to capture all facets of human interaction and activity.

3.7 Research Paradigm

For the purposes of this study both quantitative (positivist) and qualitative (anti-positivist) paradigms were used to gather data and information to meet the aims. This approach would allow for justification of the data gathered and for users to be able to feedback in more detail on their answer choices. Qualitative methods tend to fall within the Inductive approach stressing the generation of theory through the gathering of opinions and feedback. Bryman (2008) also states that Qualitative research tends towards Interpretivist and constructionist approaches, both of which have been identified as being suitable in this instance.

However, due to the nature of the research aims it was necessary to gain statistical findings to support the opinions expressed by those involved, this is enabled by quantitative methods (Bailey 1997). These statistics were used to measure changes and gather information on the relevance of theoretical opinions generated which were displayed in statistical terms. Statistics were supplemented by the opinions and suggestions which were important in order to develop a workable action plan which reflects the needs of the user. By employing methods that allow for the collection of both quantitative and qualitative data and information it was possible to justify the data and make recommendations.

Purely quantitative approaches suggest that all information about a social phenomenon can be gathered through observation of it without the need for mediation (Marsh and Furlong 2002), this approach has been discredited in communications research. Ignoring the role of individual opinion and behaviour

weakens the conclusions. It is necessary to mediate the observed data with reasons, explanations and justifications to produce the bigger picture of the social concept under observation (Marsh and Furlong 2002). To meet the needs of mediation, qualitative approaches can be employed (Marsh and Furlong 2002). Qualitative methods focus on opinions and observations of interactions rather than the gathering of data which can be specifically analysed to demonstrate relationships. Yerxa (1991) points out that qualitative approach may be considered less precise but ultimately more real in its findings.

Qualitative information is not easily analysed in a statistical way and is sometimes considered weak due to its subjective and opinionated content. It does, however, produce insight and give meaning to statistics (Dixon-Woods et al 2004). In the context of this research, understanding the reasons behind the observed data was critical in developing a plan to integrate the intended changes in work practice. It could be argued the qualitative information regarding why the observed data appears as it does is more important than the data itself.

The best method was to employ a mixed method approach containing elements of both quantitative and qualitative approaches to investigate the research subject. Some studies (Ingham 2003) have tried this approach but have used sample groups too small for quantitative analysis. Other studies (Whitaker and Sidner 1996 and Fisher et al 2006) have favoured quantitative approaches, both methods have suffered from limitations. As such it may be considered to be a balanced approach providing the researcher with the best of both worlds (Bryman 2008). However, there were considerations to be made both in terms of the philosophical compatibility of the different methods and in terms of the practicality of using a mixed method approach.

Each paradigm possesses strengths and weaknesses in terms of the data collection and analysis methods that they may employ. By combining the two it was possible to highlight the strengths and negate the weaknesses of each. For example, a quantitative approach may give data in a satisfaction survey. However, a follow up using a qualitative method may then give greater insight into the statistics which would help to generate action that would not have been possible with just the data.

Similarly, a qualitative piece of research which contains a series of suggestions for improvement without identifying how many people those apply to or whether or not the investment would be justified. A further, quantitative approach to assess the buy in for each method would help to justify them. A mixed method approach represented the most effective method of addressing the research aims laid out. This does not render the earlier consideration of philosophical and ontological approach irrelevant, as the discussion of each identified the potential to place them on a spectrum of influence rather than in black and white categories. Employing a mixed method approach may be viewed as a lack conviction in aligning with a specific epistemological and ontological position. However, in this case the inclusion of mixed methods approaches brought detail, colour and texture to the research, adding depth and providing a greater level of understanding especially for those for whom the research is most important; the users who will benefit from it.

3.8 Research Methods

The exploration of philosophies and paradigms has shown that an approach that enables the establishment of structures upon which the study will be based whilst taking into account the unique and crucial role that individuals play was necessary. A mixed method approach has been shown to enable these aims, supplemented by the use of a two phase approach.

Phase one includes the literature review and theoretical conceptual framework development chapters. Additionally Phase one included primary evidence gathering which tested the findings from the literature review, to validate the contentions made, and the validity of the proposed theoretical framework. From these findings the theoretical framework was amended to align it with the observations of the study group. The purpose of this was ensure that the theory has relevance within the proposed context of the Welsh FE sector. Considerable success has been observed in the literature, for example Whitaker and Sidner (1996) relating to the use of survey methodology for email research.

Phase two explored themes more deeply via the use of semi-structured interviews of users across the sector. A criticism levelled at previous email research by Ramsay and Renaud (2012) was that a reliance on surveys had affected results in

the past and therefore a semi-structure interview approach was taken. This thinking is built into the methodology in this study and has informed phase two. A sample of each role was selected at random and they were asked questions that initially explored their role more deeply. Secondly, questions explored the proposed conceptual framework more deeply and how it may be applied and finally addressed limitations identified in the questionnaire exercise.

3.9 Phase one

3.9.1 Literature Review and Document Search

McNeill (1994) describes a literature review as the reading of other people's work within a given area. Benefits include the provision of a sound background from which research design can be developed. It also provides a good background into what other authors have discovered about a subject allowing the researcher to build on this work rather than repeat it. Bryman (2008) points out the literature review will inform and guide the primary research component of the research itself. The review must be broad enough to consider relevant topics, contain enough analysis and depth of discussion to demonstrate clear understanding and be presented in a logical manner to allow the reader to clearly see how examination of the literature has led to the research decisions made (Bowen 2009).

However, literature reviews can become a catalogue of work that may only briefly relate to the original subject area preventing a suitable level of focus being achieved. Therefore the literature review must be analytical, discussing the relevance and merits of the work of others (McNeill 1994). A literature review can also be limited by the choice of texts used by the author. This can introduce an element of bias as the author may chose literature that suits their needs rather than a range of sources on a subject (Bowen 2009)

A wide range of resources concerned with e-mail and communication were gathered. Journals formed the majority of the sources used but these were supported by books, newspaper articles, relevant websites and television documentaries. The literature review chapter developed a theoretical framework drawing on historical and current research which proposed to help email users to make more informed choices about the communication methods they use.

3.9.2 Questionnaire

A questionnaire is a list of questions that is produced by the researcher and administered to the sample group (McNeill 1994). Pfleeger and Kitchenham (2001) point out that the questionnaire is probably the most commonly used method of gathering information. Questionnaires are viewed as a quick and inexpensive way of asking several people the same questions, research suggests that surveys are a commonly misused and misunderstood research method that have the capacity to damage research aims rather than support them (Pfleeger and Kitchenham (2001).

Stevens *et al* (1993) point out that questionnaires can be marred by the willingness of the respondent to answer the questions or by how honest people are when answering as respondents often engage in satisficing when answering questions. Questions may be leading or limited to themes that will meet the researcher's pre-determined viewpoints. In this way a questionnaire may contain a significant amount of bias (Stevens *et al* (1993). In mitigation, the series of articles presented by Pfleeger and Kitchenham (2001, 2002) will be used to base the discussion and structure of the questionnaire activity.

To structure the survey activity, the ten step approach suggested by Pfleeger and Kitchenham (2001) will be implemented as it represents the most thorough review of practical questionnaire methodology available and is practice based rather than theoretical. This will be supplemented by the 'questionnaire specification' as devised by Bourke and Fielder (1995).

3.9.3 Planning and scheduling the survey

The survey was planned during August and September 2012 and scheduled for completion between January and March 2013 in order for testing to be undertaken before deployment. Sufficient time was set aside to undertake this in order to reduce error and bias present within the survey. The timeframe was also chosen as it represented a quieter period in the academic year. The first and third terms are generally busy with new students and examinations respectively.

3.9.4 Ensuring that appropriate resources are available

Fluidsurveys was used to deploy the survey. All of the respondents had access to computers in order to complete the survey in their respective institutions. A limited number of paper copies were made available as the sampling process may have

included users who are not computer literate or did not have access to the internet during the sampling period. A Welsh medium version of the survey was also made available for those members of staff who would feel more comfortable completing the survey in Welsh.

3.9.5 Designing the survey and selecting the Participants

Having identified the specific objectives of the survey, the process of planning and scheduling the survey using appropriate resources was undertaken in order to start designing the survey. It was decided to resource the survey by using services provided by Fluidsurveys which is a third party, web based survey tool. The system allowed for detailed customisation of the survey and provided a base for wide scale distribution without having to rely upon traditional, paper based methods. In addition, the use of the tool helped to ensure anonymity. The survey could have easily been printed in a suitable format should the need have arisen.

The inbuilt analysis tools provided some automatic aggregation and basic analysis of qualitative information. The link to the survey was distributed to participants via a website or email. Additionally, the cost implications were negligible compared to the scope possible. The system did require technical literacy on the part of the respondent. It was conceivable that targeted survey participants who do not use their email effectively or are not comfortable with the use of technology will be accidentally excluded from the research activity. Participants were informed of their participation in several ways and paper copies of the survey were made available upon request.

Fluidsurveys was unable to anonymously report on participant response rate. Participants who did not respond within the specified timeframe of four weeks were not identified individually so that they could be contacted. There was a danger of introducing a degree of bias into the system as respondents within the target group may have been self-selecting and important feedback may have been missed. This was addressed through the implementation of the survey and monitoring by individual institutions.

The design of the survey was undertaken to allow the data and information presented to answer the specified aims of the survey activity introducing elements of both descriptive and experimental design to gather opinions and contributions

from the study population. Through this, descriptors can be captured to help describe the phenomenon more effectively (Pfleeger and Kitchenham 2001). This approach provided data and information to answer objectives one and two of the survey exercise objectives. Questions that conform to experimental design helped to gather feedback on the proposed conceptual framework, in particular the relevance of the contingent elements and the relative importance of each in selecting communication media enabling survey objectives three and four will be met. This approach was not the strict experimental design as outlined by Pfleeger and Kitchenham (2001) as there was no formal testing of a hypothesis or assigning of participants into controlled groups. However, they were asked to provide feedback on the proposed methods, and identified factors, using their experiences as a basis for generating the feedback.

A stratified random sampling approach was implemented allowing for a significant number of individuals within a population to be surveyed ensuring that generalisations about the population could be made. It was difficult to ascribe a specific figure to a sample size as it may reflect constraints such as time and cost issues. However, as Bryman (2008) points out, as the sample size increases, the likelihood of sampling error decreases. A sample size of 10% will be acceptable based upon the population size in question (Bryman 2008). All FE colleges in Wales were asked to participate and based upon the FTE employment figures for the academic year 2011/12 (<https://statswales.gov.uk>), the most up to date employment figures, this represented a minimum return of 900 questionnaires.

There was a need for a degree of flexibility within some strata of the sample in order to generate a valid response. If only one individual responded from an employment role within a college it would lack validity. In a number of Colleges, the information gathered from Human Resources departments demonstrated that there are fewer than ten individuals that were considered as Senior Management grade (see table 3.1 below). A 10% sample would not have returned sufficient data. In these cases, further prompting was used to ensure that there was more than one representative from each college. This method represented a balance between reducing error and increasing the likelihood of a good response rate.

Table 3.1. Numbers of staff by role as reported by HR Departments

| College | Senior Management | Middle Management | Academic | Business Support |
|---------|-------------------|-------------------|----------|------------------|
| 1 | 6 | 8 | 120 | 80 |
| 2 | 10 | 59 | 1212 | 312 |
| 3 | 5 | 15 | 290 | 70 |
| 4 | 38 | 31 | 505 | 288 |
| 5 | 6 | 20 | 64 | 20 |
| 6 | 8 | 30 | 455 | 239 |
| 7 | 20 | 51 | 1019 | 324 |
| 8 | 27 | 56 | 263 | 268 |

A probabilistic method was selected in order to reduce the subjectivity within the sample, helping to ensure that it is unbiased and representative in order to make the findings more valid and useful. As such all methods associated with non-probabilistic sampling such as convenience, snowball and quota sampling (Pfleeger and Kitchenham 2002d) were discounted in this phase of the research.

3.9.6 Identification of the Strata

The strata selected for this study were identified and defined in the literature review. The strata represent the self-reported breakdown of staff types from colleges themselves as well as reflecting the distinct pay scales and contracts in place across the FE sector. As such, these groupings fulfilled the definitions of 'roles' within the theory of Role Culture and therefore were suitable as strata for the study.

3.9.7 Preparing the data collection instrument

Having reviewed the existing studies conducted in this area it was decided to construct a new survey for the purposes of this research activity. This new survey used some of the questions and response categories initially used by authors such as Ingham (2003) to gather data on usage statistics. Other than these questions, the survey included previously unused questions to gather information relevant to the proposed conceptual framework. In keeping with the suggestions made by Pfleeger and Kitchenham (2002b), the breakdown of the survey was driven by the research questions. Four objectives were generated for the survey itself and are shown in table 3.2 mapped against the research questions. To facilitate the achievement of the objectives, the survey was split into four broad sections, the first to gather data and information on current use, the second to explore overload and wastage issues, the third to consider the impact of framework components

and the fourth to look at future email use, relationships, and provide demographic data needed to facilitate cultural analysis.

Table 3.2. Research questions mapped against survey objectives.

| Research Question | Survey Objective |
|--|---|
| 1. What impact does culture have on email use? | Gather data and further feedback to facilitate analysis into the impact of culture on email use and how users perceive working relationships. |
| 2. How do users view the constituents of working relationships? | |
| 3. How has email use changed? | Gather up to date information on email use as well as the impact of barriers and waste. |
| 4. Does email overload exist in the Welsh FE sector? | |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | |
| 6. How do users perceive email use will change in the future? | Gather information on the perceived future development of email and how barriers are introduced by technology |
| 7. What behavioural changes could be implemented to support change? | Gather feedback on the proposed conceptual framework and how the identified components impact on their email use |
| 8. How relevant is the conceptual framework proposed in the literature review? | |

The needs of the respondents were also be considered in the design process, the questions themselves needed to be relevant to the respondents to allow them to respond as questions that cannot be answered easily by the respondents were likely to reduce the chances of the subjects completing the questionnaire (Pfleeger and Kitchen ham 2002b). In addition, the relevance of the timeframe was also important as accuracy may have been reduced if the questions referred to events that occurred too far in the past.

The length of the survey may also affect response rates, Bryman (2008) identifies that long surveys result in respondent fatigue. The nature of work undertaken by some users within FE Institutions means that they may have little time to complete a questionnaire. It was necessary to keep the questionnaire as short as possible without losing the fidelity of the data and feedback being gathered. To achieve

this, all the possible questions relating to each of the four sections were gathered and grouped and repetition was removed along with weaker questions. The remainder formed the basis for the questionnaire itself.

The final major consideration in the design of the questionnaire was the wording of the questions and the types of answers. Purposeful questions allow the respondents to see how the question links to the objectives whilst concrete questions ensure that ambiguity is avoided, especially double edged questions (Pfleeger and Kitchenham 2002b). It was essential to consider whether questions included are open or closed. McNeill (1994) identifies that closed questions, ones that limit the possible responses, are useful in drawing simple statistics from the data recorded. Bryman (2008) also points out that closed questions give greater opportunity for comparability, additionally they are easy to complete which may improve response rates. Ease is also a consideration as Saunders *et al* (2000) point out. Closed questions are easier to complete and may provide prompts where ambiguity exists in the question itself.

Whilst this type of question may be easy to analyse, they restrict the respondent in terms of the responses they can give which may lead the user into giving a response that is not entirely reflective of their opinions (McNeill 1994). Bryman (2008) also points out the loss of spontaneity in using closed answers as the full range of possible responses may not be covered by the options provided by the survey. In this way bias may be introduced into the process. Open questions were used in the questionnaire as they allowed for greater gathering of opinion and feeling from respondents by enabling them to answer a question as they see fit (McNeill 1994). These questions were also used to probe answers given to closed questions, providing reasoning behind an answer. These questions also allowed for unexpected answers and depth to be added allowing the researcher to tap into experience and knowledge that the respondent possesses to enhance their own (Bryman 2008).

Open ended questions are considered to be difficult to analyse and the comparability between answers is difficult to observe (McNeill 1994). The questions can also be more time consuming for the respondents influencing the likelihood of completing the survey. Bryman (2008) considers that only those with

a strong opinion either way are likely to fully complete open ended questions which could result in a loss of the middle ground and only the gathering of polarised opinions (Pfleeger and Kitchenham 2002b).

A mix of closed and open ended questions have been used, and a number of closed question included the opportunity for the respondent to comment upon their answer allowing depth and texture to be added. Closed questions provided the statistical information required to demonstrate usage statistics and other measures of waste whilst open ended questions provided suggestions, reasons, and other detailed information that helped to refine the proposed conceptual framework.

3.9.8 Question Justifications

This chapter sets out the justification for the selection of questions included in the questionnaire used to fulfil phase one of this research. The justification is based upon analysis and evaluation made of the literature in chapter 2. In each case, the reasons for inclusion will be presented and justified either to demonstrate how the approach built upon the existing body of knowledge by expanding on existing methods or how the approach will fill a gap left by previous non-inclusion of the approach in methods. Operationalisation, as defined as the process by which intangible concepts are quantified in order to measure them (Damasio 1999, Lukyanenko et al 2014) will be considered during the formulation of each question.

In addition to justifying the inclusion, the approach for collecting the data is also justified and the methods of analysis discussed to further demonstrate the value of the intended outcomes. The questionnaire was split into four sections to represent research questions as shown in table 3.2. The questions in each survey section will be discussed in the following chapters. Table 3.3 below shows how each of the survey questions relates to the research questions generated in the literature review. The four sections of the survey help to break it up into questions that deal with similar themes. However, the mapping of the research questions does not fit neatly into the four survey sections as a number of questions apply to cross cutting themes. For example, there are questions that have an impact on a number of research questions but only appear in one section of the survey. See Appendix A for the final version of the survey.

Table 3.3. Mapping research questions to survey questions

| Research Question | Relevant survey questions |
|--|--|
| 1. What impact does culture have on email use? | 2, 5, 6, 7, 8, 9, 10, 11, 12, 12b, 13, 14, 17, 18, 19a, 19 |
| 2. How do users view the constituents of working relationships? | 14, 26 |
| 3. How has email use changed? | 5, 6, 14, 17, 18, 19a, 19 |
| 4. Does email overload exist in the Welsh FE sector? | 7, 8, 9, 10, 11, 13, 14, 17, 18, 19a, 19 |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | 12, 12b, 13, 17, 18 |
| 6. How do users perceive email use will change in the future? | 23, 24, 25 |
| 7. What behavioural changes could be implemented to support change? | 23, 24, 25 |
| 8. How relevant is the conceptual framework proposed in the literature review? | 20, 21, (10 components of each), 22, 22b, |

Survey Section one

The first two questions asked respondents to comment upon the benefits and drawbacks associated with email (see questions five and six). Whilst the literature examples did identify possible and actual benefits and drawbacks of email usage, very few took the viewpoint of the user and tended to focus upon the impact on the organisation as a whole. Whether the usage of email was positive or negative tended to be made in a quantifiable way by considering cost implications or usage volumes. These questions will give respondents the opportunity to provide qualitative feedback about the positive and negative aspects of email usage. Operationally, this will enable the respondents to define the concepts themselves in a way that can then be coded to represent groups of opinion. There is no precedent for this in the literature.

This information provided the opportunity to compare real experience with the proposals and observations made throughout the literature review in order to build upon the body of knowledge. Feedback was incorporated into the proposed conceptual framework and guidance in order to make it as relevant to the user as possible.

The questions used text boxes inviting an open response ensuring that the questions were not leading in any way. Multiple choice questions with answers derived from exploration of the literature were considered to be inappropriate as they may introduce bias (Bryman 2008). Should the identified benefits and drawbacks match those that are proposed in the explored literature then the original findings can be validated. Finally, by replicating the approaches used by other authors, comparisons could be made both of the similarities and difference between this and other sectors and of changes in opinion during the time between the studies.

The question about message volume (See questions seven and nine) has been included as this measure has been observed in a number of studies through the literature such as Whittaker and Sidner *et al* (1996), Ingham (2003) and Fisher *et al* (2006). There appears to be little similarity between findings in terms of message volume. This may be due to the way in which email usage changed between the time of the article's publication or it may be due to the different organisations studied in each paper. What is clear is that these volumes are situation and time specific and will require updating. This data was then used to extend the body of knowledge on the changing pattern of email usage.

Operationalisation is considered here as the concept of load needs to be defined. Based upon the work of other authors such as Ingham (2003) and Fisher *et al* (2006) email loads are generally measured as total incoming and outgoing messages. This quantifiable measure does not consider the psychological implications of load. The approach differed as it separately attempted to measure the outgoing message load as well as incoming message load. Previous studies focused solely on the incoming message load with the exception of Ingham (2003). Whilst sent and received message load was separated in this study, the sample group was too small to make generalisations.

Discussion of email overload indicated that the sender needs to take more responsibility of the generation of load. By measuring both sent and received emails it was possible to identify which roles generate the load and which roles receive the load and whether each has an impact upon the other. To further measure the impact of message load, the responses to this question were filtered by cultural markers to assess differences. The literature suggests that excessive

load may lead to a negative relationship with email and therefore this should be observed via the proposed analysis.

The scale used allowed for responses up to and slightly beyond those observed in the literature. Therefore a question with multiple choice categories was devised. This approach was used as it facilitated analysis whilst still allowing for averages to be generated by staff role, age group and gender. It also facilitated the cross tabulation with the benefits and drawbacks questions which will allow for greater depth of analysis.

The findings of these questions may also be used by future researchers who may wish to test the proposed conceptual framework generated from this research. Each was therefore supported by a question asking about how the volume of messages is changing. It was expected that the majority of users will report that the volume of messages is increasing, reflecting the findings in the literature.

Users were not be asked to break down the received message load into unsolicited and solicited communication as there were concerns over the accuracy that would result.

Whilst message volume has been measured in a number of studies, few have considered the link between volume and time spent (see question 11). The operationalisation of the time concept emulated that used by Frazee (1996), Lyons (2002), Davenport (2005) and Huang et al (2011) who aimed to estimate the amount of time, in minutes, users spent working with their email. Whilst message volume is an essential indicator of load, time is also important load factor as it detracts from other duties. By calculating time spent it was possible to consider monetary cost. This approach, linking incoming and outgoing message volume with time is unique in email research.

Several approaches to delivering this question were considered. Ideally, users would be able to have their time measured by email programmes. However, a bespoke piece of software would be required and installed on the computers of all users involved in the study. It would also have been difficult to measure usage of both email clients installed on static machines within the Colleges and the usage of webmail offsite. Other logistical issues such as a simple system that measures how long the email programme is open for would rely on users closing the programme when not in use.

Asking users to keep a tally over a period of time which would more accurately measure time spent using email was also considered. Again, this would suffer from user error as well as lack of engagement. As such it was decided to use a fixed sliding scale to provide an accurate estimate of time used. Whilst data collected in this way may be accurate, it is important to note that Tourangeau *et al* (2000) noted that where open scales were used, respondents tended to apply their own categorical approach to answering them either by blocking in tens or reporting in the bottom 15% of the scale or top 85%.

The data was linked to role to observe whether there are categories of users that tend to spend more time using email than others. The results were also used to calculate an estimation of sector wide email cost. The final analysis made of this data in relation to that gathered on perceived wastage in section two. This allowed for an estimated cost of wastage to be calculated. This can be used as a measure by future researchers who may wish to explore the effectiveness of the proposed conceptual framework.

To supplement the questions on incoming and outgoing message load, respondents were asked to identify whether this load is changing or remaining static (see questions eight and ten). Operationally, load in this case is defined as incoming and outgoing message numbers rather than the perceived implications. It has been observed in the literature that there is an overall view that email load is increasing across a number of sectors (Whittaker and Sidner 1996, Whittaker *et al* 2006, Fisher *et al* 2006). However, other than through the analysis of usage statistics this view has not been tested. It is considered that the best measure of this is to directly ask the users whether their message load is generally increasing, decreasing or staying the same. Once again, this question was uniquely placed in email usage research.

It was decided to use a multiple choice question with the responses increased, decreased or stayed the same. This was most appropriate and straightforward method of gathering this information. Whilst a text box would have allowed for greater opinion to be gathered, in order to facilitate analysis the responses would need to be grouped into similar categories as were used in the closed question. As such it was considered that asking directly would facilitate analysis (Tourangeau *et al* 2000).

The results of this question were used in conjunction with sent and received message load as well as time spent to produce an overall trend for the sector as to whether message load is increasing or decreasing. The results were also analysed in relation to role to see if there are particular user groupings that are experiencing different trends to others. Finally, the results were used as part of analysis into wastage. This combination of analysis has not been presented in any other research into email usage.

Having considered different measures of load it was decided to include a question to investigate how users feel about the manageability of email (see question 12 and 12b). Whilst it has been observed in a number of articles that the load on users in terms of email volume is increasing (Whittaker and Sidner *et al* 1996, Fisher *et al* 2006 and Ingham 2003), in each case users have not been asked their opinions on how this affects them. Whilst the statistics suggest that increasing load through volume will result in negative outcomes (Ingham 2003), this has not been directly measured. Operationalising opinion is a difficult task, therefore, it was decided to gauge manageability through quantitative terms and link it to sent and received load by look at how many messages could be managed. This provided a quantifiable measure that could be used to assess overload. This approach has not been taken previously and therefore precedent does not exist within the extant literature.

Work conducted by Marlunda-Carter and Jackson (2012) demonstrated a relationship between opinions of email load and the potential for email addiction. As a result the data gathered by this question will build upon the approach taken by Ingham (2003) and others who did consider other measures used in this study such as time spent by staff type and sent and received message load.

Analysis of email load demonstrated a number of different types of users. Ingham (2003) identified those who may become loaded to such an excess that they may withdraw from usage and ignore messages entirely. Denning (1982) identified that some users would become better at coping by ensuring that messages were managed and directed appropriately, these users would not perceive high levels of load. Authors such as Whittaker and Sidner (1996) and Fisher *et al* (2006) also considered the characteristics of users who were being loaded by an email system. Despite this, there was no direct measure of user perception of what constitutes a manageable load, rather the measures focus on trying to quantify

coping strategies which in turn may suggest load perceptions. Therefore these questions were added to address this. With no previous direction to follow it was decided to use a text box response for these questions. It was felt that a multiple choice scale would yield a leading question and limit responses. The text box allowed for greater freedom in the response.

The responses were gathered and then linked back to number of messages sent and received per day as well as time to see if there was a link. Analysis of the literature suggests that the increasing trend in message load as previously discussed seems to parallel an increasing perception of email overload. By analysing the qualitative responses from this question in relation to other messages this relationship can be better quantified. This information was cross referenced to questions on wastage to see if those who perceive high load also perceive high wastage.

Having questioned respondents on the manageability of email load, the following question asked users whether they wish to change this (see question 13). Operationally, this type of question may have a variety of responses including non-committal outcomes that would not yield useful data. Therefore, the question was a simple yes or no question with the option to justify the negative response. This question type was considered to be the most appropriate as whilst it is largely a quantitative response it was decided that in order to structure the question in such a way that it facilitated a purely qualitative response would result in overly complex analysis.

Having questioned respondents in a number of different ways about load it was decided to include a question that tested the assertion made in the literature review (see question 14) where it was discussed that consideration of the recipient is essential in ensuring that email usage is maximised. This conclusion builds on the assertion that 'cueless' communication as suggested by Rutter and Stephenson (1979) in relation to MRT (Daft and Lengel 1986) fails to consider whether or not the recipient is receptive to information being sent via a communication medium.

This further considered analysis of literacy levels, the role of the recipient in the conceptual interpretation of Noise theory as proposed in the literature review and the role of the relationship between the sender and recipient.

The use of a yes/no question was selected to fulfil operationalisation issues as it tightened up the concept of consideration of others. A further question went on to explore what this meant to users. Open ended text boxes were added and the respondent encouraged to justify their answer either way. As this question has not been directly used in email research previously it is considered that there is no precedent. The approach taken here will balance quantitative and qualitative information to help provide justification for the actions of individuals.

The responses to this question were analysed in isolation to provide an idea of how widespread the idea of recipient consideration is. In addition, the results were cross referenced with sent message load and it is expected that those who exhibit a tendency not to consider the recipient will likely have a high sent message load. This was in keeping with the reflection upon the literature about overload which tends to suggest that it is the actions of the recipient rather than the sender that have the biggest impact on message load.

Survey Section two

Section two of the questionnaire contained questions that explored the idea of email wastage in more detail. This was the second step of the analysis. Once usage has been established in section 1, wastage can be considered in section two and then questions relating the proposed framework to address issues can be addressed in section 3. There were other measures related to wastage such as duplication of messages, inappropriate content and questions about the suitability of email as a medium in certain situations. This section sought to build upon this research by looking in more depth at wastage and causes in order to help structure the proposed conceptual framework to meet the demand of reducing wastage.

The initial question in this section sought to identify whether or not respondents felt they waste time when using email (see question 17). Time as a measure was selected to fulfil operationalisation as it is a straightforward concept for users to grasp and has been used in previous questions and by other authors (See Ingham 2003 and Fisher et al 2006). In addition, whilst there are inferences relating to wastage in the literature it has not been directly measured. For example, articles have identified concerns such as duplication of messages which may be considered an example of wastage. Therefore, this question was included to assess both the existence of email wastage and to establish the causes of it.

The question type selected was a yes or no closed question. It was decided that this would produce the information required to gauge whether or not there is a perception of email wastage among the study subjects. There are important differences between the ways in which the question has been asked. An open text box approach may have led to inconsistent feedback which would have made analysis difficult. For example one respondent may have used a qualitative response such as 'a lot' where another user may have made a quantitative response such as '20%'.

The question was analysed in isolation to establish how widespread the opinion of wastage is and what the key waste categories are. The ways in which wastage occurs were linked back to literature explored to establish whether similar phenomena have been previously observed. In addition to this, the results from this question were considered in relation to usage and opinions on increasing or decreasing load. It was considered that a high message load coupled with perceptions of overload would result in the perception of wastage.

This question was amended following the pilot stage of the survey to reword the question. It was initially felt that the question answered itself and needed to be structured in a more simple way (see question 18). The approach decided upon enabled respondents to quantify the amount of wasted time they experienced when using email systems. Some studies explored have presented monetary figures on email waste but have not fully explained how these figures were investigated and calculated.

A percentage slider scale was selected for this question to enable respondents to make an educated estimate about wastage. Categories of percentages displayed as a multiple choice question were considered but were dismissed based on the analytical value of the responses. It was felt that actual percentages from the scale would produce a more accurate overall average as opposed to calculating averages for frequency distribution tables. As a result the slider allowed respondents to select anywhere between 0 and 100% wastage at 1% increments (Cape 2008).

A percentage scale was selected rather than an actual time scale as it was felt that the estimation would be more accurate (Tourangeau et al 2000). It also facilitated analysis when comparing the results of this time with actual time spent using email systems. In addition a text box response was included to allow respondents to

provide an example of wastage rather than how much time is wasted. This allowed the prevalence of different types of wastage to be assessed.

The analysis of this question was undertaken in isolation to establish what proportion of time, on average, respondents feel is wasted. The results of this question were analysed in relation to role to see if any grouping perceives greater wastage than others. The results were also analysed in relation to time spent using email. It was considered that where users have perceived wastage and display high levels of load and usage then the proportion of that wastage will be high.

Having identified levels of wastage it was essential to consider the reasons for this wastage (see question 19). Operationally, this question was devised to observe the instances of wasteful actions that have been identified in chapter 2.6. The actions are gathered from a number of different sources and represent those that may be considered as overload issues as well as those that may cause misinterpretation and those generated as a result of abuse of email systems. Therefore the selected answers represent a good overall definition of the concept of wasteful action.

Inappropriate content, aggressive tone, bullying, and offensive content all reflect discussions undertaken by authors such as Connolly (1996), Carr (1998), Romm and Pliskin (1999b), Baruch (2004), Taylor *et al* (2005), Kato *et al* (2007), Lim and Teo (2009) and Riordan and Kruez (2010). All of these authors identified damaging effects that may lead to wastage being introduced. These issues have stood in isolation and have not been directly linked to quantifiable email usage. Ingham (2003) did identify a link between excess and interruptions in email systems but did not seek to quantify and justify this as was undertaken in this study.

The other possible responses to this question included messages being sent to avoid face-to-face communication, poorly written, hastily composed without due consideration, containing irrelevant content and identical messages being received from multiple sources. These issues were observed in in the literature review where CNT and OT were linked as to contextualise the importance of relationship based email usage. Other authors such as Whittaker and Sidner (1996), Adam (2002), Jackson *et al* (2003), Dabbish and Kraut (2006) and Sumecki *et al* (2010)

have identified these types of issues in email usage. Once again, the link back to actual usage, wastage and culture has not been made, as was done here.

It was decided to structure the question to reduce the load on the respondents. Each element could have been questioned individually but this would have increased the length of the survey and may have impacted upon the response rate. As such, a checkbox question was selected. Respondents were asked to consider whether they have received messages that may fit within the identified categories. More than one can be identified when answering the question. It was decided to use predetermined categories derived from literature review in order to prompt the respondents to think about practice they have observed. An entirely qualitative type question with an open text box may not have yielded measurable data that would have been useful. In addition it would have been difficult to structure a question to fit a text box response.

To supplement the quantitative data gathered each response had a text box and respondents were asked to provide an example for the responses they select. The value of this was to provide information on what constitutes the practice that leads a respondent to select a particular response. For example, had the respondent selected receiving multiple copies of the same message as an issue, by completing the text response it will be possible generate a picture of how this affects the respondent.

The question was analysed using basic statistic techniques to ascertain the prevalence of these types of behaviours. Further analysis was carried out on the text responses to find common types of activities that constitute these negative behaviours. As well as isolated analysis, this question was analysed in conjunction with those looking at wastage. It was predicted that high consideration of wastage would be accompanied by higher levels of damaging practices being observed in this question. This further helped to target waste reduction strategies as part of the proposed conceptual framework.

Following the pilot phase, a 'none of the above' option was added to enable this response. Selecting this option would void any other selection made. In addition, the text response boxes were removed from the options and displayed separately asking respondents to comment upon one detailed example of misuse rather than finding examples for all those selected. It was felt that this would facilitate an improvement in response rates. Finally, the question was reworded slightly to

encourage respondents not to use specific names or identifying comments to help protect the anonymity of all involved in the study.

Survey Section three

The third and final section of the questionnaire dealt with questions designed to elicit responses about elements of the proposed conceptual framework. As the conceptual framework was still in development it was decided not to present the conceptual framework to respondents prior to them answering questions about their opinions. Additionally, by asking questions in isolation it was possible to assess the relevance of the conceptual framework in an unbiased way and also gather feedback to make the conceptual framework as relevant as possible before deployment.

The initial questions dealt with the key situational determinants included within the conceptual framework as identified in the literature review (see questions 20 and 21). Firstly users were questioned on how much of an impact the determinants have on their practice now and how useful they feel that considering them would be in enhancing practice in the future. The purpose of measuring how much they are considered in current practice was to link this with possible wastage. By considering how useful they could be it was possible to use the information to influence the structure of the proposed conceptual framework.

It was decided that each determinant would be rated on a scale of one to ten of importance. This is not a ranking as some determinants may be equally important so it was viewed as essential not to limit the respondent's choice. The slider increments were set at 0.1 to allow the respondents to be as accurate as they wished to be in their assessment. An open question was considered asking respondents to identify the factors that impact on their email practice. However, this would not have allowed measurement against the identified factors included in the conceptual framework. As such, it was considered that the approach adopted is the most suitable for the needs of the study.

Analysis of these questions was made in isolation from other questions. Averages for each situational determinant were taken. For question 20 this information was used to assess current practice within the sector as well as identifying which were already regularly considered. A large criticism levied against the contingency approaches investigated is that they did not provide a practical model which can

be followed easily to enable change. The models may explain behaviour but they do not enact change by allowing for behaviour modification.

Following the pilot of the survey several changes were implemented within these questions. Emphasis was placed upon key words in both questions to highlight the focus of the question and remind the respondents what they were being asked to consider. This was as a result of the layout of the question on the screen where the main question disappeared from the top of the screen before all of the subsections were visible. To further facilitate this slider bars were placed adjacent to one another to further reduce the space taken up and the font of the subsections reduced to highlight that they are parts of a larger question.

The remaining questions in this section (see questions 22 to 26) were all concerned with gathering mainly qualitative feedback and suggestions about email operations. Operationally, the concepts under discussion have not been defined elsewhere so by asking open questions it would facilitate the generation of such definitions in order to narrow the concepts for future investigation. Each was also relevant to the on-going development of the proposed conceptual framework. This section sought to elicit opinions and open responses from respondents where other email studies have tended to focus on the quantitative approaches. Where interview approaches have been employed, for example Ingham (2003), the study size has been small. These questions represent a compromise between depth and breadth of responses.

The first questions (see question 22 and 22b) sought to establish the take up of training on email systems. This was in response to the assertions made by Sumecki *et al* (2010) that training has a large role to play in the more effective management of email usage. The findings from that study were not conclusive and therefore it has been decided to ask these here. Operationally the aim was to establish whether respondents have attended training on the use of email and if so, what the content of the training was such as training on regulations, usage of software packages etc. The responses were selected after consideration of work on email training (Compeau 2007, Soucek and Moser 2010 and Sumecki *et al* 2010) in order to define the concepts. The second part of the question sought to establish whether those who undertook training felt that it was appropriate to their role. Findings from the literature suggest that non-targeted interventions do not produce effective results in changing email usage habits.

Questions (see question 23 to 26) were included to gather feedback based upon the foundations upon which the conceptual framework is built. Each question was an open text response to allow for the gathering of qualitative information that could be fed into the development of the conceptual framework. These responses were highly valued for the depth of opinion that they can provide. Text analysis was used to draw out common themes and ideas from each. Additionally, reference back to earlier questions helped to further explain and add texture to the responses gathered. As discussed, the ideas of increases in email use and barriers to effective use have no precedent in the literature and therefore selection of appropriate measures was difficult. Using open ended approaches enabled definitions to be generated.

As discussed, this section looked to collect up to date information on email usage across the FE sector in Wales. In order to do so the respondents were asked to identify their College from a list provided (see question 1). The primary purpose for inclusion of this question was to ensure that there is sufficient representation from each of the Colleges included in the study to allow for generalisations to be made.

In order to ensure anonymity for the respondents, all Colleges in Wales were included in the list and the researcher will be aware of which to exclude once data collection has taken place. It was decided not to list only the involved Colleges as this may have exposed them to potential harm or damaged the integrity of the data collected. An option was considered to include a simple text field for users to include the name of their College to further add anonymity to the process. However, this approach would have been highly time consuming and slight misspelling of words or abbreviations would make it difficult to identify all relevant responses. As such it was proposed that the selected approach represents a satisfactory compromise.

Respondents were also asked to identify what role they fall into (see question 2). There were a number of reasons for the inclusion of this question. In the study of MRT (Daft and Lengel 1986) only management grade workers were included in the development of the conceptual framework. As such it can be considered that the study is not representative of a whole body of staff within an organisation. By including all roles the conclusions can be extended. Similar limitations were observed in work by Johnson and Lederer (2005) who based their conclusions on interactions between CEOs and CIOs.

However, studies conducted by Kluger and DeNisi (1996) and Panteli (2001) did not extend to all staff within organisations. The study conducted by Panteli (2001) is useful in this case as it showed differences in attitudes towards email within different tiers of the organisation. The approach selected for this study followed this approach but will also build upon it through the cross tabulation of results linking to cultural considerations. The use of role and job formed an integral basis for the analysis undertaken and enabled extensive discussion on the importance of relationship in email use. Operationally, information on employment roles gathered in the literature review was used to structure the response categories. Respondents were asked to select whether they are senior managers, middle managers, business support staff or academic staff. Academic and business support staff were also asked to state their discipline.

After the survey was released for pilot it was decided to add a discipline box to the business support staff response option. This allowed for the analysis to take into account the feedback from staff who work regularly with IT systems such as IT engineers and administration assistants. Specified categories were included to reduce the complexity of analysis. Once again, a simple text box allowing staff input their role was considered but dismissed due to the difficulty in grouping the responses once collected. The categories were selected after careful analysis of College structures in Wales so to best represent the breakdown of staff. Age group and gender were included to ensure that the sample gathered is representative of the sector as a whole. Responses were gathered to validate the representative nature of the data. Questions were not used directly in analysis as there is no evidence to suggest they directly impact email use (see questions three and four).

Whilst the previous questions have been discussed in relation to their inclusion in section one of the questionnaire, it was decided to present the independent variables at the end of the questionnaire. This is in response to research that suggests that this approach is linked to an increase in return rate as the respondents begin the survey with the real questions.

3.9.9 Validating the survey

Prior to administering the survey the validity will be tested. To evaluate the survey, Pfleeger and Kitchenham (2002c) suggest that it is essential to check that questions are understandable, to assess the likely response rates, to evaluate validity and to ensure that data analysis matches expected responses.

A pilot study was undertaken using the first final version of the questionnaire. The purpose of this was to refine the questionnaire to ensure it is easy for the respondents to complete the questionnaire and that the methods of data analysis are acceptable (Saunders *et al* 2000). The final version of the questionnaire can be seen in Appendix A.

A two phase pilot approach was employed to engage content experts and representative respondents. As recommended by Mitchell (1996) a group of experts were asked to comment upon the representativeness and suitability of the questions in order to establish the content validity. Pfleeger and Kitchenham (2002c) discussed that content validity is a subjective assessment of how appropriate the instrument appears to experts including ensuring the instrument contains everything that it needs to. Whilst the method is not statistically measured, it is accepted as an appropriate means of basing a rigorous assessment of validity. Pfleeger and Kitchenham (2002c) also point out that when developing an instrument to measure a topic that has not been covered before, as in this piece of research, content validity is the only real method of establishing validity.

The pilot phase also made use of a non-expert pilot group to assess how easy the questions were to understand to respondents reflective of the sample group. This allowed for refining of the language used and checking for any missing response categories in closed questions. Additionally, this exercise allows for the layout of the questionnaire to be assessed.

This method was used here as it is a good way of enabling face validity as well as ensuring content validity in accordance with the findings of Pfleeger and Kitchenham (2002c). Ten experts were involved in the first phase and additional fifty non experts were consulted during the second phase. A number of those involved reported no specific issues.

Pilot phase one

During the first pilot phase the opening statement was adjusted to make it more prominent and to explain the intended outcomes of the survey more fully. Question 19 was adjusted to ensure the responses were more specific to the FE context rather than broader email use contexts. Question 20 was adjusted to include

underlining of 'impact' to emphasise the importance of this as the factor for consideration. Similarly for question 21 'useful' was underlined to highlight the importance.

Finally, as part of this phase an expert in quantitative analysis was consulted to ensure that the questions would generate the results needed in order to be useful. Discussion around the wording of questions 20 and 21 was undertaken and questions 12 and 12b were modified to ensure that the key points of 'send' and 'received' were picked out of questions that were close together and appeared very similar.

Pilot phase two

During the second pilot phase only a few comments were received from non-experts, most of which were comfortable with the wording of the questions and how to respond. The introductory statement was amended again, this time to explain what action to take in the event of technical difficulties. This arose as some difficulties were noted by participants. The most important changes were made as a result of feedback from a lawyer who participated. Concern was raised that respondents may take question 19 as an opportunity to attack specific individuals. If this was the case it may lead to respondents being identified or potentially making defamatory statements. Advice was sought in this instance and a short statement was added to the start of the question to avoid this issue.

3.9.10 Administering and scoring the instrument

Despite initial timeframes, the survey was deployed in February 2013 due to logistical constraints. The Fluidsurveys system was used to carry out the survey and basic scoring will be undertaken automatically by the system itself. Saunders *et al* (2000) point out, an essential part of administering the questionnaire instrument is to attempt to maximise the response rate. Jobber and O'Reilly (1996) identified six techniques that could be incorporated into the research timetable in an effort to maximise response rates. Relevant techniques were employed.

Prior notification was made which may have increased the response rate by up to 19% (Jobber and O'Reilly 1996). Whilst it was suggested that this is done via the telephone, the number of individuals within the sample group would have made this prohibitively time consuming. Saunders *et al* (2000) suggests that it is acceptable to contact by email to advise of the upcoming survey. In addition the Colleges involved were given a detailed set of instructions prior to administering

the questionnaire in order that they may assist with ensuring response rates are high. Follow up contact was also used to ensure that the response rate was high (Jobber and O'Reilly 1996). An initial window of four weeks was allowed a follow up period of one week with a reminder will then be used and if necessary a final follow up period of one week was used. Jobber and O'Reilly (1996) point out that this may increase the response rate by up to 12%.

The final technique was to ensure anonymity. McNeill (1994) points out, it is important that the researcher consider the potential impact upon the population portrayed within the work. This is especially important if the individuals involved have provided information or evidence that may harm their position within the organisation. If respondents are unsure of the anonymity of the questionnaire they may either not give honest responses, especially to longer answer qualitative questions, or not return the questionnaire at all. Jobber and O'Reilly (1996) consider that up to 30% improvements in response rates may be observed if both internal and external anonymity of the respondents is maintained. Monetary and non-monetary incentives were excluded as methods of improving response rates as they cannot be incorporated into the research activity. Additionally, incentives may skew the validity of the results.

3.10 Phase two

Phase two comprised a series of semi structured interviews that were conducted with representatives from the roles identified in the Welsh FE Sector. Participants were selected using a stratified random sampling method to ensure that all roles were covered equally.

Due to logistical considerations a number of compromises have had to be made. Twenty interviews were planned to be conducted which is significantly lower than the expected response rates for the questionnaire. However, it is difficult to conduct a large number of interviews for reasons such as cost and difficulties in engaging participants (Doody and Noonan 2013). The number of interviews is similar to that conducted by Ingham (2003) who made a significant contribution on the subject of email overload through the use of twenty interviews. All interviews were conducted via the telephone. The justification for this will be explained later when dealing with the deployment of the instrument.

3.10.1 Review of the interview method

The use of interviews is common in research and can be a useful tool in gathering information about opinions, attitudes and social norms (Bryman 2008). There are different types of interview method that can be employed, each with their own strengths and weaknesses in the information gathering process. Interview types will be explored and justification provided for the use of the semi structured interview in this research. Doody and Noonan (2013) summarise that interviews are useful in gaining context to situations and enabling participants to expand on issues in more detail (Marshall and Rossman 1995). The complexity of the questions being asked can be increased and answers can be probed where the method allows. Interviews are useful in generating quotes and stories that can be used to add colour and context to other approaches such as questionnaire responses. The information received can be more useful as the participants are able to seek clarification on the meaning of questions which is not possible in remote methods of information gathering (Saunders *et al* 2000).

However, interviews may seem intrusive to the participant, especially if the subject is contentious or intimate. The time that is required of the participant may also be an issue limiting the ability of the research to engage participants (Doody and Noonan 2013). Interviews may also be time consuming and expensive for the researcher. As a result of this, the scope of the exercise is likely to be limited to a smaller number of participants that would be engaged through other methods possibly calling the validity of the findings into question. Whilst the survey phase could be easily extended to all workers in the Welsh FE sector, the interview phase was necessarily limited in comparison. The main criticism of the interview method is the susceptibility to bias. Bias may arise either from the researcher or from the respondent. Researcher bias may include adjusting the wording of questions to elicit a response or the leading of the participant whereas bias originating from the participant may include the desire to please or create a good impression rather than answering honestly. Awareness of these issues can help the researcher avoid this bias during the deployment of interviews.

The reliability, validity and generalisability of interviews are also issues as interviews are difficult to reproduce exactly which can affect the reliability of the findings (Saunders *et al* 2000). It is necessary to note that interviews capture circumstances at a specific period in time and should recognise the additional

pressures on the participant (Doody and Noonan 2013). Findings from interviews may not be generalisable due to the small and potentially unrepresentative number of cases employed in the research (Whiting 2008). Due to this the findings may not be able to be applied to other contexts. If the sample is too small and unrepresentative it may not even be generalised within the context it was collected (Mason 2010).

Whilst there exists a range of interview types they tend to fall into three main categories, structured, semi-structured and unstructured interviews. The structured interview has value both in quantitative and qualitative research (Doody and Noonan 2013). The aim of the structured interview is to provide a standardised set of questions along with context to ensure that all participants are asked exactly the same questions in the same way (Corbetta 2003). This will allow for the aggregation of the results and reporting via statistical methods.

An essential element of the structured interview is that a schedule is produced that contains a set protocol of questions that is adhered to throughout the process (McKenna *et al* 2006), enabling the process to be efficient and limits the subjectivity and bias that may be introduced by the researcher. Due to the specified nature of the interview it follows that the results should be easily replicated by another researcher provided with the same protocol (McKenna *et al* 2006). In addition, the method enables straightforward analysis of the results (Holloway and Wheeler 2010). Structured interviews have several significant shortcomings that make them unsuitable for this study. Due to the highly specific nature of the process there is no room for respondents to elaborate on their answers reducing the process to little more than a spoken questionnaire (Berg 2009). For this study, interviews aim to expand upon the responses gathered in the initial questionnaire. Limiting the scope of the responses severely limits the usefulness of the interview process. Semi-structured interviews are considered to be the most common type of interview used in research (Holloway and Wheeler 2010). Pre-determined questions are used but there is the freedom to explore the answers and seek clarification. Necessarily, the actual questions and the time spent exploring issues will vary from interview to interview (Saunders *et al* 2000).

An interview guide will enable the researcher to collect similar information from all participants and create a sense of order without limited the scope of the discussion too much (David and Sutton 2004). Through the use of the schedule the researcher can alter the order of questioning and insert further probing questions depending on the natural direction that the interview takes, dealing with issues spontaneously (Ryan *et al* 2009, Power *et al* 2010). The richness of the information that can be collected by this method increases the validity of the study being undertaken (Hand 2003). Diefenbach (2009) points out that the semi-structured interview is often approached without due consideration to what the interviewer actually wants to know. As a result, there is the tendency for the approach to shift during the process that can damage the results.

The nature of the probing elements included to explore answers is open to significant researcher bias unless there is sufficient guidance provided in the method (Diefenbach 2008). This issue goes hand in hand with the issue of methodological development during the process. As the interview may explore elements that are not listed in the guide there is the tendency for researchers to refine the instrument as the process is undertaken (Diefecnbach 2008). This will mean that interviews undertaken later in the process will be different to those undertaken earlier in the process. In order to avoid this, an indicative list of prompts or probes can be included in the guide to maintain consistency (Whiting 2008).

The final approach to interview methods is the unstructured interview. Holloway and Wheeler (2010) identify the unstructured interview process as being where a broad, open question about the area of study is asked and no further questions are planned in addition to this. This approach still employs an interview guide but this tends to comprise a series of themes rather than specific questions. By using this approach there is the potential to generate rich data by exploring participants thoughts and interests in depth (Ryan *et al* 2009). Unstructured interviews can suffer from difficulties in interpreting the information gathered. Where more structured interview types lend themselves to data coding, the unstructured interview requires the matching of similar statements and concepts which can be difficult to do and is open to significant bias (Ryan *et al* 2009). In addition, as the

wording and nature of questions will differ between interviews it can be very difficult to compare the findings.

In addition, a novice researcher may find it difficult to distinguish between relevant and irrelevant findings and may ask questions in an unsuitable manner, all of which will further introduce bias into the process. Therefore, the semi-structured approach was used along with a question guide. The questions were not modified during the interview phase and generic prompts were used. Practice of the interview technique was also undertaken prior to carrying out the interviews with real participants.

3.10.2 Development of the instrument

It was decided that the interview method was appropriate for this phase as there was the ability to explore concepts in greater depth and to use probes to elicit information that may not have come across in the survey. In addition, the interviews would provide for greater exploration of findings from the questionnaire itself.

In order to achieve these aims the semi-structured approach was used. It was decided that the structured interview would restrict the potential for exploring opinions and feelings upon which a significant portion of this research rests (Doody and Noonan 2013). In addition, the structured interview approach would be very similar to administering a second questionnaire without the benefit of wide reach. The unstructured approach would not be suitable as there would not be enough focus to enable the topics that need to be covered to be included. Whilst this method may yield greater depth in the area of feeling and opinion the uncertainty of getting what is actually required makes it too great a risk as the aims of the interview process may not be met and the results would not answer the research questions. .

As a result the semi-structure approach was selected. An interview guide was developed as per the discussion undertaken about interview good practice (Whiting 2008). This guide included prompts about the types of probing questions to use and the circumstances under which they would be appropriate. This would help to guide the researcher and ensure uniformity across the deployment of the interviews. Concerns over the refining of interview questions throughout the process was recognised. To help minimise the impact of this the interview was

piloted prior to the undertaking of actual information collection. This enabled the adjustment of questions to ensure they could be understood and that the wording made sense. This exercise also allowed for the flow of questions to be adjusted to make it logical.

The limitations of time and scope were also recognised and are accepted as inherent in the method. A total of twenty interviews were scheduled which is only a small fraction of the number targeted in Phase 1. It was recognised that this limits the usefulness of the findings but it must also be understood that the interviews were being used to add to existing findings and supplement analysis rather than as a set of standalone findings. As such the low numbers can be tolerated. To ensure representation it was decided to employ the same stratified random sample approach used in the questionnaire design increasing the generalisability of the findings by ensuring that all groups are covered. Where the deployment differed from the questionnaire is that equal numbers of interviews were conducted within each strata. Whilst this means that different proportions of each strata were targeted, it ensured that findings from the smaller strata could still be compared and similar themes drawn out. In addition, if proportions were used and these were based upon ensuring a suitable number for comparison from the smaller strata, it would result in large numbers needing to be interviewed in other strata which is not logistically possible.

3.10.3 Question Design

In a similar way to the justifications provided for the inclusion of survey questions, the inclusion of the main questions used in the interviews will be explained. In addition to the explanation, the expected outcomes of the questions will also be outlined to show their relevance. Operationalisation, as defined as the process by which intangible concepts are quantified in order to measure them (Damasio 1999, Lukyanenko et al 2014) will be considered during the formulation of each question. Table 3.4 shows how the interview questions relate to the research questions generated in the literature review.

Table 3.4. Mapping research questions to interview questions

| Research Question | Relevant interview questions |
|--|--|
| 1. What impact does culture have on email use? | 1, 2, 3, 4, 6, 7, 8, 9, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22 |
| 2. How do users view the constituents of working relationships? | 6, 7, 8, 9, 10, 20 |
| 3. How has email use changed? | 3, 4, 5, 10, 11, 14, 15, 16, 17, 18, 19, 21 |
| 4. Does email overload exist in the Welsh FE sector? | 5, 6, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22 |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | 5, 6, 11, 18, 19 |
| 6. How do users perceive email use will change in the future? | N/A |
| 7. What behavioural changes could be implemented to support change? | 22 |
| 8. How relevant is the conceptual framework proposed in the literature review? | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 |

The interview itself was split into three main sections, the remainder of the explanations will also be divided accordingly. Initially the role of the respondent was explored. Role has been discussed as a potential influencing factor in email usage. This section enabled the identification of roles in order to supplement the discussion on the influence of this on email usage.

The second section sought to build on the confirmation provided on the validity of the proposed conceptual framework. The questions in this section emerged from the theoretical framework and justifications provided in the literature review. Finally, a series of questions were posed that either built upon responses in the questionnaire or sought to fill gaps that were exposed by the limitation of the survey method.

Questions relating to role

An initial question seeking to establish the specific role of the respondent was asked and classified amongst the four key roles established in chapter 2.4 to fulfil operational considerations. It was hoped that opportunities will present themselves

to further explore grey areas within the roles in order to enhance the analysis undertaken in chapter 5.2. Whilst the majority of staff in the FE sector occupy a single role some could be considered as dual roles such as where academic management roles include a degree of teaching, giving the respondent some of the characteristics of an Academic member of staff.

Participants were also asked what they perceive their day-to-day activities to be. Rather than using established literature to generate categories to define the concept, thus fulfilling operational concerns, this question used open ended questions to explore the accessibility that the participant has to email during their working day. Probes considering how much time is spent in and out of an office, at meetings or teaching were also used. It was envisaged that this question would establish differences between the activities undertaken by each role which may be used to enhance the analysis into the influence of role. This information was used to enhance the analysis undertaken in chapters 5.2 and 5.3 by providing context to explain observations relating to role differences.

A further question was also asked about the proportion of time spent without access to email. A number of studies explored in the literature review assumed regular and sustained access to email (Ingham 2003, Fisher et al 2006, Hurst 2007). This question was in direct support of the usage volume and perceived manageable maximum questions included in the questionnaire and was integrated into the analysis found in chapters 5.3, 5.3 and 5.4. Here it was hoped to illustrate a link between perceptions of waste, lower perceptions of manageable maximums and a greater amount of time spent without email access. Participants were asked about the roles that they primarily use email for, research studied in the literature review showed examples of email being used for tasks it was not intended for (Whittaker and Sidner 1996). Once again it was hoped that different roles will report different usage of email. In addition to this the markers of inappropriate email usage were also looked for such activities as the sharing of documents as well as a storage repository for information. As well as inappropriate usage, it was considered that roles will make use of email in alternative ways which will highlight further potential differences between roles. This was used in support of analysis in chapters 5.2, 5.3, 5.4 and as part of the framework justification in chapter 5.6.

Finally, in this section, participants were asked whether they like using email. A dislike of email may be symptomatic of overload (Ingham 2003) or simply of tolerance rather than engagement (Hurst 2007). This direct question was followed by further probing questions exploring why they do or do not like using email and what it is specifically that they like or dislike. Answers to this question provided context to the remainder of the answers as it will directly reveal any bias held by the participant.

Questions relating to conceptual framework confirmation

A key component of the proposed conceptual framework was the idea of subjective distance, a concept based on relationships with colleagues, discussed at length in chapters 2.2 and 2.3. The nature of good working relationships has been explored in the questionnaire in response to literature review findings in chapters 2.3 and 2.4 and discussed in chapter 5.3. Some examples exist within the literature relating to good working relationships and this information was used in operationalisation to refine the question during discussion as necessary. In this case the participants were asked whether relationship influences their communication medium choices. Assertions have been made that a less rich means of communication can be made richer if the missing cues can be substituted with previous experience (see chapter 2.2). This would make methods such as email more effective by reducing the equivocality involved in the process. In addition to this, a strong response in favour of the idea that relationship influences communication choice would help to validate its inclusion in the conceptual framework. This question also used the outcome of the questions that looked at scoring conceptual framework components. Specifically the questions looking at the importance attached to relationship were used to generate probing questions based upon the outcomes. This became a cross cutting theme in chapters 5.2, 5.3, 5.4, 5.5 and 5.6.

The following two questions looked to build on the first in this section. Firstly, participants were asked to identify which of the roles they have the closest relationship with and why this is the case. It was considered likely that the closest relationships would exist with members of the same role as described by role culture in chapter 2.4. As part of the same question the participants were asked to justify their answer as to why they consider that they have the best relationship with this role. This was used to further base analyses of working relationships as seen in chapter 5.3.

Once the role within which the closest relationship exists is established the following question explored the predominant method of communication in these situations. Chapter 2.2 suggested that less rich means of communication become richer as relationship improves. This is an important consideration as it has already been asserted that communication outside of a similar cultural group will likely lead to a reduction in communication efficacy. By identifying the main method of communication within a role it follows that this method of communication may suffer when used outside of the role. The results of this are discussed at length in chapter 5.3. Further probing questions were used to explore why the chosen method of communication is used.

The following question asked participants to identify which role is the most difficult to communicate with. This follows on from discussion on the issues related to cross culture communication in chapters 2.3 and 2.4. If there are differences in the way that roles use email then it stands to reason that there will be differences in the ease with which roles communicate with one another. Ultimately, these three questions were used to generate a conceptual map of the relationships between the roles identified in the study which is presented in chapter 5.3.2. This map supports analysis into the way different roles use email and ultimately the importance of relationship in the conceptual framework.

In addition to supporting a conceptual map, these questions also answered the question posed in chapter 2.4 relating to the existence of role culture and communication differences in chapter 2.3. Where differences in email usage is one aspect, the analysis based on the findings of Kincaid *et al* (1983) is another. These questions helped to demonstrate whether greater time is spent, and therefore communication is undertaken, with individuals in the same role.

Participants were also asked to identify what motivates them to use email in the first place. This question was aimed at ensuring that the ideas that underpin the components of the conceptual framework are still valid in the modern workplace, as discussed in chapter 5.6. Some of the underpinning ideas originate in literature published a number of years previously and therefore establishing their continued validity is essential.

Finally, participants were questioned about other methods that they consider as alternatives to email. It was likely that, as discussed in chapter 2.6, some participants will have poor experiences using email and therefore this question will

give them an opportunity to explain alternative methods and what draws them to this. As part of this question, any allusion to stress, bullying or overload was explored in more depth in order to add to recommendations during the discussions undertaken in chapters 5.2 and 5.6. The second reason for exploring alternatives was that this is the core purpose of the conceptual framework. Enabling users to make decisions about appropriate communication methods is what the conceptual framework is designed to do. Looking at what users consider to be alternatives already would help to predict responses to the conceptual framework in relation to the alternatives that will be selected if email is not appropriate.

Questions arising from questionnaire results

The final set of questions were rooted in the questionnaire. The questions either sought to build on answers to provide greater depth or to fill in gaps that exist as part of the limitations of the questionnaire. The first two questions focused on the benefits and drawbacks of email usage. These were the first two survey questions and elicited a range of responses as seen in tables 4.25 and 4.35 in chapter 4.3. Once coded these responses were broken down by role and further exploration looking at why the individuals within each role perceive the benefits and drawbacks that they do was undertaken. To achieve this, the first question will identify the drawbacks most commonly cited by the role being interviewed and will then ask the participant why they believed this to be the case. The additional depth helped to bolster the results of the survey. It was anticipated that the answers to this question would also manifest later in the survey when looking at inappropriate and wasteful behaviours so the increased depth of analysis provided by this question also impacted on those results. Likewise, the same approach was taken to the question about the benefits of email usage. The responses from the interview participants were used to bolster the survey results.

The following two questions asked who they send and receive messages from. These questions arose as the questionnaire captured email usage in terms of sent and received messages and perceived manageable maximums but the difference in usage between roles has not been captured using the questionnaire. As a result, this limited the analysis possible and therefore the usefulness of the results.

By asking who participants send email to it was possible to add context to the sent email figures captured in the questionnaire and was used in the analysis and discussion found in chapters 5.2 and 5.3. The aim here was to see whether

participants are primarily using emails to communicate with others in the same role or with other users in different role. It was anticipated that there will be a pattern of sent messages based on role. The purpose was the same for the question about received messages. For both of these questions, further probing questions were used to seek reasons for the answers provided. It was anticipated that relationship or time spent with others will be an important factor influencing email usage.

The following question asked participants to identify whether their email usage has changed in the past two years. Increases in email use have been shown throughout the literature review, especially in chapter 2.6. The period of time was chosen as it represented a length of time for which there would be good recall of activity. This question sought to build on and confirm the change in usage questions used in the questionnaire. A time frame was been applied here as it was decided that the question employed in the questionnaire was too vague. The question was worded to avoid bias as it did not suggest that usage has increased or decreased. The findings were used to inform analysis and discussion in chapter 5.4. Where value is further added to the questionnaire findings was in the following question that asked participants to identify what they believe has been the cause of this change. There was no way provided in the questionnaire to capture this information. The aim of this was to provide some context to the increase in email usage that is observed by users. The information gathered here was used in the analysis discussion found in chapter 5.5.

The probing questions to be used alongside these sought to question beyond simply an increase in sent and received messages. Whilst changed usage is linked directly to changes in sent and received messages, this is an outcome of a problem rather than the problem itself. Participants were asked to identify what has caused the change in sent and received messages.

The following question sought to discover whether email loads are more than can be managed. It was proposed at the end of the literature review that overload tends to come without context and tolerance appears to vary (Whittaker and Sidner 1996, Fisher et al 2006, Hurst 2007). The purpose of this question was to add to the reported sent and received loads and the perception of maximum manageable loads. The aim was to gather further feedback about the possible overload implications of a mismatch between actual and perceived manageable loads. The findings were used in the analysis found in chapters 5.2 and 5.5.

Further, probing questions were also employed to find out why participants believe their load is more than they can manage. If the answer to the original question had reported that the participant felt load was more than could be managed then probing questions sought to establish whether or not it causes stress, another marker of overload. Participants were then questioned as to whether or not they would like to change their email usage. This question was designed to reflect the one in the questionnaire exploring the desire to change email usage. The probing questions sought to discover why the participants wish to change their usage. The questionnaire was not capable of capturing that information. The findings were used to bolster analysis and discussion in chapter 5.2.

Whether or not users consider the needs of others when using email was explored in the questionnaire. Exploration around consideration of others needs was made in chapter 2.6. However, questions were limited to whether or not consideration is made and any other response that arises from longer answer question following the categorical response. In the interviews, the nature of this consideration was explored in greater depth. Participants were asked what consideration they make of others when sending email. The purpose as to add context and depth to the responses from the questionnaire on this issue. The findings were used to enhance analysis particularly during the justification of the conceptual framework in chapter 5.6.

The following question further explored the issue of wasted time. Initially, the questionnaire was replicated with participants being asked whether they waste time. The aim was to confirm the findings from the questionnaire. Probing questions considered how much time is wasted, again this replicated the questionnaire.

Additional probing questions sought to then clarify what exactly wastes time and how that made participants feel. The questionnaire did not capture feedback on how users feel about wasting time and the interview represented a good opportunity to explore this issue in depth as necessary. This theme was analysed in chapters 5.4 and 5.6. The final question in the interview process explored concerns raised in the questionnaire. It was envisaged that the concerns warranting exploration would differ between roles identified in the methodology. As such, the question was amended slightly depending on the role profile of the participant being questioned. Probing questions were then used to explore why the

role may have identified these as concerns, what about them was concerning and whether it may reduce the effective use of email. The depth provided by this line of questioning supplemented the findings of the questionnaire significantly.

3.10.4 Validating the instrument

In the same way as in phase one, the interviews required validating before they were deployed. The same criteria of face and content validity were employed (Pfleeger and Kitchenham 2002c). In addition, the validity of the context was considered as per the suggestions of McDaniel et al (1994).

The approach to piloting interviews was slightly different in that mock interviews were undertaken with individuals outside of the population under study. The purpose of this exercise was to ensure that the questions were understandable once they were read to the participant. Whilst semi-structured interviews do allow for explanation, if the question was easily understood without additional explanation then it would allow for greater consistency in deployment.

Where questions could not be changed without losing their meaning, standardised prompts were developed to ensure that a degree of consistency, and therefore comparability, was maintained. In addition the validity findings of McDaniel (1994) were employed and the interviews included situational and job related questions in addition to being deployed by the same individual.

3.10.5 Administering and Scoring the Instrument

A strict plan was put into place for the administration of the interviews. Four sets of the main questions were produced that reflected the role differences relating to the benefits and drawbacks as well as issues relating to inappropriate use of email. Prompt questions were not included in these documents, instead these were kept in a master document to be used by the interviewer.

A representative from each role in the participating organisations was selected to take part in the interviews. Whilst random sampling may have been most appropriate, a degree of convenience sampling was tolerated to ensure that the interviews were completed, as Doody and Noonan (2013) point out, interviews can be perceived as intrusive and time consuming by the participant. When asking questions about controversial subjects it can be difficult to ensure that genuine responses are solicited which could be difficult if the respondent is not fully willing to participate.

As a result of this, there needed to be a degree of self-selection in the interview process. Willing candidates were asked to volunteer to participate and from these, a participant was randomly selected. This reduced the chances of a poor interview response as the participant had already identified that they were willing to participate (Doody and Noonan 2013). However, self-selection does introduce significant issues relating to bias and lack of validity in the results (Heckman 1979).

In order to reduce the issues associated with this approach certain steps were taken. When being asked to volunteer, the potential participants were not given specifics about the content of the interviews reducing the chances of extremes of opinion entering into the response set. Willingness was sought from a practical and philosophical perspective rather than reflecting the participant's interest in the subject.

The twenty proposed interviews were to be conducted in the five Colleges that provided the greatest response rate during the questionnaire phase. These institutions were selected as they had already demonstrated engagement with the study which should have reduced the potential for withdrawal. In addition, this approach would have provided representation from a broad geographical area with representation from college in West, South and Mid as well as North Wales. A range of representation is important as not all colleges were engaged with the interview phase and the geographical spread would help to ensure the results remained representative.

Once the participants were randomly selected from those willing to participate they were sent the set of questions that was relevant to their role. In the document there was an introduction to the process and purpose of the interview. The provision of questions to the participants helped them to consider their basic answers prior to the start of the interview. As some of the questions asked participants to consider behaviours or situations from the past, an opportunity to reflect on these to identify suitable examples helped to reduce error introduced by miss-reporting of information. It was recognised that the participants are busy, providing questions in advance speeds the interview process and reduced the chances of unpleasant surprises during the process.

The participants were asked to identify a suitable time for the telephone interview to take place. The purpose of choosing one approach even where participants

may be close enough to conduct face-to-face interviews (Jackle *et al* 2006). There may be differences in responses when using face-to-face and telephone interviews so one approach is used to maintain consistency to allow responses to be compared.

It was due to logistical issues that the interviews took place via telephone. Whilst this may have reduced the opportunity to fully develop a rapport as according to Whiting (2008) it was a necessity in this case due to constraints over travel. There were other issues to be considered when undertaking interviews by telephone. Jackle *et al* (2006) points out that telephone respondents are more likely to produce socially desirable responses, so whilst telephone interviews may increase the level of anonymity this is outweighed by a proper rapport built up during face-to-face interviews. Despite this, there is no evidence of a difference in the extent of satisficing, responses that are provided as the participant believes they are what the interviewer wishes to hear (Tourangeau *et al* 2000) during responses indicating that telephone interviews are acceptable.

All interviews were recorded so that they could be referred back to as necessary. An accurate record enabled direct quotes to be taken and used in the analysis of the findings. Recording the interviews also reduced the potential for interview bias in the recording of the conversation. Once recorded, the interviews were transcribed to enable analysis to be undertaken as suggested by Whiting (2008). However, Whiting (2008) also notes that recording of interviews is effective but may impact on comfort and therefore accuracy of responses. This may be quickly overcome during the interview via rapport building. Building a rapport with the participant through the initial questioning (Oakley 1981, Spencer *et al* 2003) can help to overcome apprehension related to recording interviews.

3.11 Reporting and analysing the results.

Reporting of the results was broken down into a number of chapters in order to effectively answer the research questions. The discussion to answer question one, a cross cutting theme, was spread across chapters 5.2, 5.3, 5.4 and 5.6. Question two was addressed in chapter 5.3. Question three was addressed in chapter 5.4. Question four, a further cross cutting theme, was addressed in chapters 5.2, 5.4, 5.5 and 5.6. Question five was addressed in chapters 5.2 and 5.4. Questions six and seven were addressed in chapter 5.5 and question eight was addressed in chapter 5.6. The discussion chapters were structured in this way to reflect the

themes in the literature review and to reduce repetition in analysis and discussion caused by the cross cutting themes.

Statistical analysis was carried out via the SPSS package to ensure accuracy and consistency in analysis and presentation. This method allowed for the presentation of descriptive as well as analytical statistics through the use of statistical testing. A number of previous studies have used descriptive statistics (Markus 1994, Frazee 1996, Flood 2001, Belotti et al 2006, Szostek 2011), however, very few have used statistical testing with the aim of demonstrating differences between groups within the study. The questions selected for use in the questionnaire and the permissible response types lent themselves to being analysed via three main statistical tests. Chi-Square tests were used to test the differences between independent groups when analysing categorical responses (Pallant 2010). This was of particular use when looking at usage statistics, changes in email use and any other questions where differences and similarities between groups within the data set are sought for categorical variables. The data gathered lent itself well to the use of this analysis.

ANOVA testing was used in situations where differences between groups needed to be tested for continuous variables (Pallant 2010). Questions relating to time spent using email and perceived manageable maximums were analysed using this method. By employing ANOVA testing it was possible to statistically analyse the differences between roles and job groupings for continuous variables which yielded useful data. Finally, correlation was used to compare continuous variables where it is appropriate. In the case of the data gathered this was most useful in correlating perceived maximum data to demonstrate the relationship between sent and received message perceptions.

A number of questions gathered qualitative data which cannot be analysed through statistical means. In order to make use of the results two approaches were taken. Qualitative data was coded in order to group responses into similar themes which were then be reported on quantitatively as well as descriptively. The responses were also used to provide quotes to support findings. Basic data about the participants was recorded to demonstrate the scope of the interview responses and their validity within the research. The responses were then be integrated into

the existing analysis to enhance the findings gathered and analysis conducted in phase one. It was anticipated that the interviews will also provide quotes to support points made throughout the analysis. There are few standalone questions in the interviews that required individual analysis in the results such as types of activities undertaken by role. Qualitative information has been gathered in the form of open ended questions from the phase one survey and semi-structured interviews during phase two. In the case of open ended survey questions coding was used to organise feedback into themes and report on their occurrence, as per content analysis (Bryman 2008). The semi structured interview analysis also used content analysis and elements of narrative analysis.

The first area of consideration is how the long answer questions from the survey were analysed. Approximately twelve thousand long answer comments were received during phase one. The components used to analyse this feedback are noted in Miles and Huber (1994). Initially, once the feedback had been gathered codes were assigned to each of the answers. FluidSurveys (the online data collection system used for the surveys), was used as part of a priori method of generating codes. In this method a broad set of codes is generated prior to assessing the information specifically (Miles and Huberman 1994). These codes can be generated from background work but in this case they were generated by word recognition algorithms present within the software. Once the start codes had been generated the coding exercise began by examining the long answer questions and applying the codes. As per the indications by Bailey (1997) the codes needed to be developed at the coding exercise progressed. Some codes suffered from decay and were removed in the process whilst others grew and became more prevalent than the initial code generation by the software.

Throughout the survey the open ended questions tended to ask for feedback on a specific theme which meant that each response could be allocated a single code regarding the topic of the feedback. For some of the more complex responses, particularly to more open questions about the future directions of email, a more complex approach was required. In doing so, the approach suggested by Strauss and Corbin (1990) was adopted. Initially, open coding was employed which identified sections of the text and allocated codes to them. These codes were then grouped using axial coding to enable themes to be reported on rather than simply reporting the codes. This enabled more sense to be made of the longer

responses found in the open questions in the survey. Through this method, all the open questions were coded and quantified to identify key themes in the responses. Coupled with statistical analysis this allowed for differences in opinions across groups to be analysed. In addition to this, actual answers were used in the analysis and discussion to demonstrate key points and add depth to the discourse.

Analysis of the information collected during phase two required more complex methods. Firstly, all interviews were transcribed verbatim based upon recordings made. It is worth noting that CAQDAS software was used initially but with the diversity and complexity of the information gathered it became cumbersome to use. It was decided to code by hand on hard copies of the interview transcripts. There were a number of considerations to be taken into account during this analysis. Firstly, some questions generated data that could be analysed in a quantitative manner such as where emails were sent and with whom participants had the better working relationships. Other questions required a degree of coding to demonstrate similarities within roles and across the whole sample group. Finally, other questions required more detailed content and thematic analysis to identify and report on emerging themes. The relevant analytical technique for each of the interview questions and follow up prompts is shown in table 3.5 below.

Coding of interview responses followed a similar approach to that used in the survey responses. However, the priori codes used to group information had a variety of sources rather than using software to identify them. A further difference came as the codes were not presented statistically as they were based upon survey responses. This decision was made as there were only fifteen interviews conducted and therefore statistical presentation would not be appropriate and as the responses were being used to bolster other analysis rather than as a stand-alone component. Content analysis is a flexible approach that includes a range of methods (Hsieh and Shannon 2005). The value of the approach comes from enabling researcher to vary how the approach is employed based upon the needs of the research being undertaken (Weber 1990). Strictly speaking, traditional content analysis would be used to generate codes from longer bodies of text which could then be analysed statistically (Morse and Field (1995). However, with the small numbers found within phase two of this study this approach will not be appropriate.

The flexible nature of content analysis means that it can be used to identify the themes that are common across responses without necessarily applying statistical outcomes. To that end, the approach is appropriate and useful. In this study, content analysis has been combined with thematic analysis in order to provide the wider exploration of themes and patterns (Braun and Clarke 2006). Once again, the major benefit of thematic analysis is the flexibility that it brings to analysis (Braun and Clarke 2006). The approach is not tied to a specific research approach and so can be applied in a variety of situations.

Concerns are raised over the use of thematic analysis (Boyatzis 1998, Attride-Stirling 2001, Tuckett 2005) in that as definitions can be loose it can be difficult to specifically identify how a researcher went about analysing information using this method and what assumptions were made. Therefore the exercise cannot be replicated easily. What is important about thematic analysis is that it allows for themes to emerge from the information rather than relying upon preconceived ideas (Rubin and Rubin 1995). In the case of this research the combination of content and thematic analysis has allowed for rich information to be extracted from the interview responses. When considering the questions where this approach was to be used the first step was to consider what constituted a theme. Braun and Clarke (2006) point out that this can be a difficult step in the process and is open to significant interpretation. As the interviews were to be used in two ways, to show similarities and differences within roles as well as the whole sample population, it was decided that themes could emerge from a single interview.

During the analysis, as a theme was identified in one interview it was initially checked across the interviews conducted within the same role to see how specific it was to the role as a whole. Once this was complete the same theme was checked across all interviews. Some questions were not checked across all interviews as they were modified depending on the role of the individual being interviewed. Once these themes were identified they could be discussed within the relevant analysis and discussion sub-chapters in order to add additional depth. In some cases, important themes emerged from a single interview which helped to explain elements of the data. Whilst these may not have been common themes their value meant that the ideas being discussed needed to be included.

Table 3.5. Mapping interview questions and prompts to analytical method

| Interview Question | Analysis Method | Additional Probe | Analysis method |
|--|---|--|---|
| What is your role? | Quantitative – establishing role fit | N/A | N/A |
| What do you perceive to be the general day to day activities associated with your role? | Thematic – establish activities associated with roles. | N/A | N/A |
| What proportion of your working day do you spend without access to your email? | Quantitative – percentage being sought | N/A | N/A |
| What are the tasks you use email for? | Coding – priori codes based upon established uses, check relevance and occurrence | N/A | N/A |
| Do you like using email? | Quantitative – yes / no | <i>Why, what do you like/dislike</i> | Thematic – explore open responses |
| Does the relationship you have with someone influence how you choose to communicate with them? | Quantitative – initial responses likely to be short | <i>Probe as to why, the relationship components of the framework score low, is relationship an important consideration in communication method selection</i> | Thematic – open responses sought with ideas and opinions. |
| Of the roles (when questioning list them), who do you have the closest relationship to? Why? (may give example of spending most time with) | Quantitative – grouping difficulties by role | N/A | N/A |

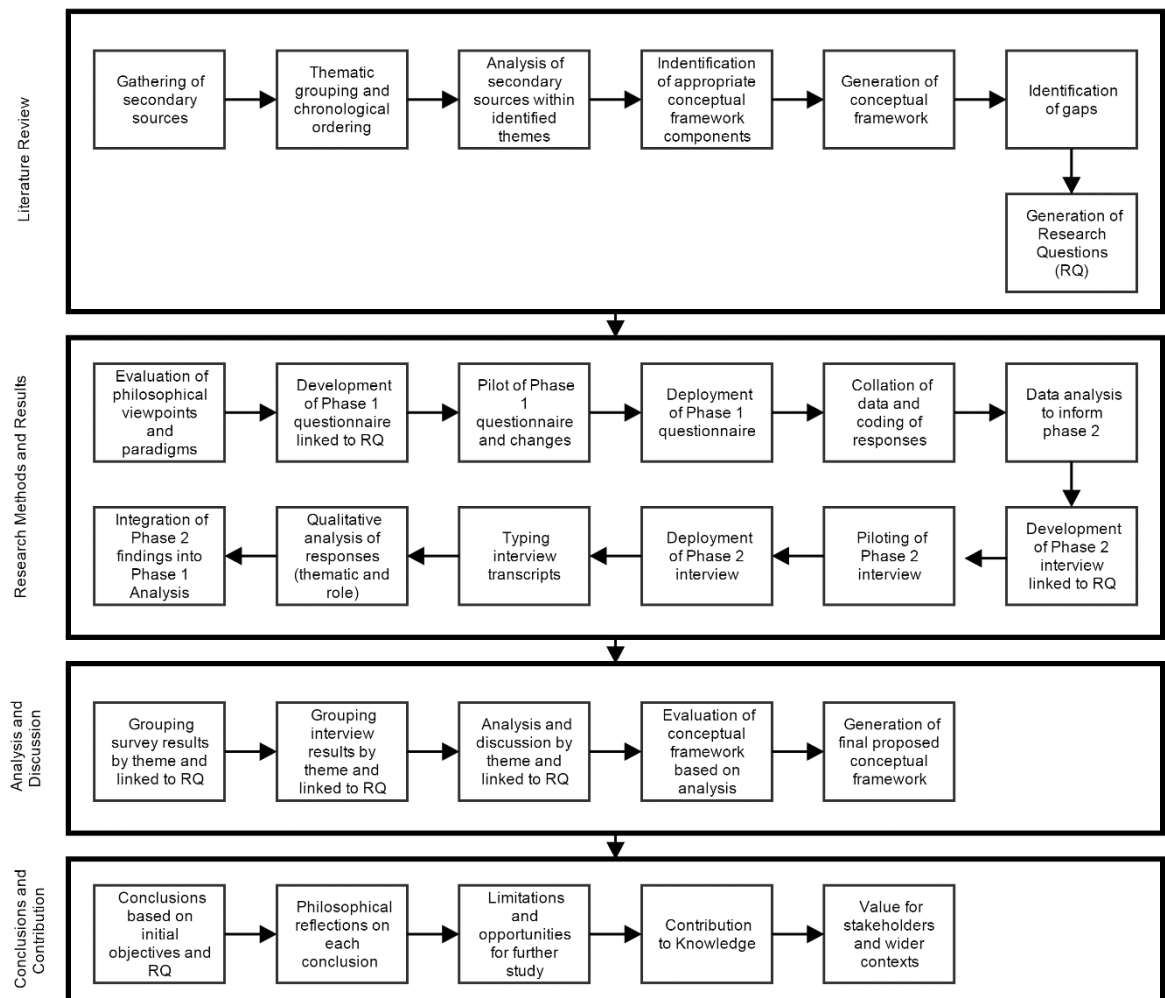
| | | | |
|---|--|--|--|
| What is the predominant method of communication used with people in the same role? (substitute role with the name of the role related to who is being questioned) | Coding – priori codes based upon established methods of communication | <i>Probe to find out why</i> | Thematic – open response and opinions sought to establish why this is the case. |
| Which role is the most difficult to communicate with? | Quantitative – other roles established and identified | <i>Probe to find out why</i> | Thematic – open response and opinions sought to establish why this is the case. |
| What motivates you to use email to communicate? | Thematic – open response and opinions sought to establish why this is the case. | N/A | N/A |
| What other methods of communication do you consider as an alternative to email? | Coded and Thematic – other forms of communication are established but justification offered. | N/A | N/A |
| (Examples based on role) have been identified as drawbacks to email usage, why do you think this may be the case? | Thematic – drawbacks are offered and opinions sought. Opinion may be linked to role or individual. | <i>Probe on answers if they do not provide reasons</i> | Thematic – drawbacks are offered and opinions sought. Opinion may be linked to role or individual. |
| Who do you send messages to? | Quantitative – specific identification for mapping | <i>Why is this the case for the above?</i> | Thematic – explore reasons behind sent and received messages. Opinions and open discourse essential. |
| Who do you receive messages from? | Quantitative – specific identification for mapping | | |
| Has your email usage changed in the past two years? (if yes, ask following question, if no then skip 1) | Quantitative – yes/no | N/A | N/A |
| What do you believe has caused email usage to change? | Thematic – exploration of reasons and personal impact | N/A | N/A |

| | | | |
|---|--|---|--|
| Do you believe your email load is more than you can manage? | Quantitative – initial yes/no answer | <i>Why or why not. If yes does this cause stress</i> | Thematic – exploration of opinion |
| Would you like to change email usage? | Quantitative – initial yes/no answer | <i>If so, why do you want to?</i> | Thematic – exploration of opinion |
| What consideration do you make of others when sending email? | Coding – codes based on established feedback in survey | N/A | N/A |
| Do you waste time when using email? | Quantitative – initial yes/no answer | <i>How much time, what wastes time, how does it make you feel?</i> | Thematic – exploration of opinion |
| Does (issue appropriate to role) concern you about email usage? | Quantitative – initial yes/no answer | <i>Why, what about it is concerning, does it reduce effective use of email, can you provide an example?</i> | Coding and Thematic – coded against survey feedback. Themes emerging from opinion. |

3.12 Implementation of research strategy and operationalisation

This sub-chapter reports on how the identified strategies and approaches were carried out at a practical level to demonstrate how methodological approaches were carried out during the research process. Each phase of the research process will be discussed to include the literature review, selection and implementation of methods, reporting of results, analysis and discussion and generation of conclusions and contribution to knowledge. This reflection will focus on how and why activities were carried out the way that they were. A flow chart of the overall process can be seen in figure 3.6 below.

Figure 3.6. Graphical representation of strategy implementation



3.12.1 Literature Review

At the start of the literature review phase an initial search was undertaken to find journal articles relevant to the topic of email. Some relevant books were available and were sourced but the evolving nature of the topic meant that the most up to date information was to be found in journal articles. Once gathered the articles were grouped along broad themes relevant to the topic. Once grouped, these

articles were initially placed into chronological order and then into argument groups.

The initial theme to be explored was that of MRT and relationships influences. This was a logical start point as the conclusions of MRT are used extensively in consultant advice regarding the use of email. Exploration of this theme showed that the role of relationship and culture was being excluded from media analysis and that it may positively impact upon methods such as email.

Culture and relationships was the next logical theme to explore in relation to email use. At this point, little research had been conducted into the impact of either relationship or culture on email use so a broader perspective was used, firstly to establish the nature of culture and secondly to establish how communication was influenced by it. It was also clear that the nature of roles may influence cultures and communication so this was explored with a view to basing a significant portion of the analysis upon it. The nature of working relationships was explored as it was becoming clear that this influences the potential to enhance richness in less rich communications. It was not clear what actually constituted a good working relationship so this was to form an important line of enquiry during the primary research phases.

Exploration of culture and relationship showed that behaviour impacted on others and so it was decided to explore how email load came about and the potential impact of overload on users. This area was very important as it informed the generation of the initial conceptual framework and sections of the primary research. It was clear at this point that there were a number of important factors that were influencing the effective use of email so a review of contingency was undertaken to establish the relevance of the approach. It was concluded that a conceptual framework that would allow users to identify with a number of different contingent factors in an order that was appropriate would be an effective approach to addressing the issues explored.

From the discussion undertaken it was then possible to identify and justify the relevant components of the conceptual framework and to justify the theoretical value of the framework itself. From this there emerged a number of areas that required further study and ultimately, the research questions upon which the enquiries would be based. Whilst the literature review was undertaken during the

initial stages of the research it was revisited to update it in line with primary research findings and to update it as new research was published.

3.12.2 Research Methods

The initial consideration when developing the research methods was to address the philosophical limitations that were identified in studies used in the literature review. By doing so, the experimental design could be generated to maximise the value of the work. As email studies had been criticised for being both too positivist and too interpretivist in their approaches it was decided that a critical realist perspective would provide an appropriate balance and enable the environment to be effectively established before being studied. On a spectrum, the selected approach lay more towards the interpretivist end due to the emphasis placed upon qualitative input.

To enable the philosophy to be realised a two phase approach was decided upon. Phase one employed a large scale survey to gather data on a range of issues. The content of the survey was influenced by the research questions to ensure that the data collected would be able to satisfy them. A number of previous studies on email were consulted to assess the types of questions used and the approaches to asking them. From this a bank of questions was devised and then refined to generate the first version of the survey.

The pilot of the survey was undertaken with two separate groups, experts and non-experts. Experts were targeted from the IT industry and were asked to assess how well the questions being posed addressed the research questions. Once this was complete and amendments made the non-expert group were asked to assess how clear the questions were and whether they caused any confusion. In addition, this pilot group looked at the opening statement and instructions. Once all pilot phases were complete the survey was bilingualised to ensure that it would be accessible to as many as possible within the sector.

It was decided to use FluidSurveys, an online survey tool, to deploy the survey. The ability to reach wider and analytical tools outweighed the possible limitation of deploying a survey about email via a link emailed to users. To further get around this additional deployment methods were employed such as limited paper based surveys as well as extra notification opportunities such as in departmental meetings and on intranets. It is important to note that Colleges were given instructions on how to employ these methods.

The deployment phase was delayed slightly as the sector had been undergoing changes and mergers. During this time it was decided to widen the original participation to try and include more institutions in the study. Initially, half the colleges had committed to undertake the survey. Through Colegau Cymru all colleges were contacted again and further commitment to participate was received. A key lesson learnt here was that whilst permission was required from College principals the point of contact needed to be someone else, generally a PA or other manager. Once these additional points of contact were made, securing participation became much easier and all College committed to participate.

Colleges were asked to advise staff of the survey one week before it was deployed to try to increase response rates. Once the survey was employed an initial window of four weeks was used to collect data. This was longer than initially expected but was required as different colleges distributed the survey at different times. Whilst a stratified random sample was used it was impossible to obtain the required information from colleges to allow the approach to be employed in the strictest terms. The compromise reached was that Colleges would undertake the random deployment as per a set of instructions. Whilst this is not ideal it does represent an appropriate compromise.

During the response window each college tended to follow the same pattern when responding. As a College deployed the survey there would be a surge of results, generally around 70% of the responses from each college were received within the first three days. Responses would then tail off. After the four week window not all institutions had participated as agreed. The first reminder was targeted at these institutions and resulted in them beginning to participate. The final reminder, a week later, targeted all colleges to increase response rates before the survey was closed. Once closed, each college was thanked for their participation.

Once all survey responses were collected reporting of results and data analysis began. The survey software identified those results that were not complete and excluded them from the analysis. Of the 1198 responses received, 1010 were used for analysis. The survey software was capable of generating basic descriptive statistics on quantitative responses which was updated as responses were received. This tool was used to make an initial check on the spread of results to ensure they were representative. In addition, basic qualitative analysis algorithms allowed for priori codes to be generated for longer answer questions.

The data was then imported into SPSS and appropriate work in the dataset was undertaken to ensure the outputs would demonstrate the required results.

Quantitative and qualitative analysis took place as per discussion in chapter 3.11.

Initial reporting of the results and analysis was undertaken for phase one. The findings were critical in informing the lines of questioning for the phase two interviews. Gaps within the data were identified and addressed by the generation of questions to ask interview participants. Issues that emerged from the data were also developed into questions to enable them to be explored in greater depth. These were generated based upon the role of the participant to enhance the value of the feedback. It was also clear that the feedback from the interviews would be best reported within the analysis of the survey to allow the links to be made between the phases and for the additional depth to be achieved. Therefore the results of the interviews were not reported separately.

The interviews were then piloted and carried out over a four week period via telephone. This approach was selected as it allowed for the wider reach of being able to contact colleges that were further away as well as reducing cost. All interviews were carried out in the same way to maintain consistency. The top five responding colleges were selected to participate in the interview phase and were contacted to secure their participation. These colleges were selected as they would be most likely to provide participants due to high response rates from the survey. It has been noted that participating in an interview can be difficult for the participant and that uptake may be low. Initially, each college was asked to appeal for volunteers across all roles and from these, the participants were randomly selected. This may result in a degree of self-selection and convenience but it was necessary to achieve response rates.

Only fifteen of the initially intended twenty interviews were carried out due to a college withdrawing from the interviews due to merger and the backup college being unable to participate. At this point it was decided to close the data collection and focus on analysis due to time constraints. All of the interviews were recorded and typed up verbatim to allow for the analysis as discussed in chapter 3.11. Once organised, the analysis was integrated into that of the phase one responses.

3.12.3 Analysis and Discussion

It was decided to order the analysis and discussion to reflect the themes explored in the literature review. This would achieve consistency of structure and allow for

linkages to be made back to the established literature. The structure of the chapter also allowed for the research questions to be addressed ready to be answered during the conclusions chapter. The analysis and discussion within the themes made use of the quantitative and qualitative analysis tools discussed and presented short conclusions to show what had been learnt during discussion of each. Once each of the themes had been analysed and discussed the findings were incorporated into assessing the merit of each of the conceptual framework components. Each was discussed and a decision made either to retain, modify or remove the components. The analysis and discussion also enabled some overall justifications for the existence of the conceptual framework that built upon the findings used to propose it in the first place.

3.12.4 Conclusions and contribution to knowledge

The final conclusions were drawn and were ordered according to how they met the initial objectives and answered the research questions. During the discussion of the conclusions summaries of the answers to the research questions were highlighted. Philosophical reflections were also made to show how the approaches taken and analysis influenced research philosophies. Limitations to the study were also recognised at this point along with opportunities for future study which had emerged from the research. Finally, the contribution to knowledge was presented to show the original value of the work. This was conducted in general terms and was then discussed in the context of the organisational setting in which the research took place. The generalisability of the work was also discussed at length.

3.13 Methodological Limitations – Phases one and two

It has been decided to report on the methodological limitations of phases one and two together as the approaches in each shared similar issues relating to bias, miss-reporting and poor implementation of the methods. The vast majority of these issues have been addressed throughout the chapter and explained along with the steps put in place to mitigate them. This chapter will summarise some of the key points already discussed. When undertaking survey and interview research it is important to ensure that the instrument is resilient to bias, that is appropriate and that the approach is effective when compared to resources and participants. In each case, a degree of limitation can be introduced to the process which may affect the outcomes. Recognising these and put into place steps to reduce the impact will enhance the validity of the research. There are numerous stages at

which bias may be introduced into the process. Each of these will be outlined and steps taken to reduce the effects of this will be discussed.

The first point at which bias and error may be introduced is through the objectives set for the research. If these objectives contain bias that reflects the personal opinions of the researcher then the whole process of data collection will be flawed. As such, the objectives have been devised and have been subjected to an approvals process to ensure that they are appropriate and are not biased in any way. As a result, the research objectives reflect an open, unbiased enquiry based approach to the research.

Secondly, the planning and scheduling of the survey can cause bias. In the case of working with individuals who work in FE colleges it is crucial to select a period where the majority of individuals will not be prevented from participating due to other, more pressing demands on their time. Whilst it was impossible to accommodate everyone there are periods in the academic year where there is less pressure. The first term tends to revolve around the induction of new students and may contain early examination of modules and other assessments. As such, this period would not have been an appropriate time to conduct the research. The final term of the year is dominated by completion of courses, summer examinations, recruitment of new students and forward planning. Therefore, to reduce the chance of bias in terms of exclusion of participants, both the survey and interview components were conducted during the second term in the period between January and March.

The next issue that may introduce bias into the process is the availability of resources required for participants to engage with the research. Again, potential participants may be unwittingly excluded from the research in this way, inadvertently causing bias. The survey was deployed via email for completion online. Whilst this can enhance response rates due to the anonymity provided by the approach there are still issues. As the research is about email use, individuals who are on the fringe where they do not use email will not receive notification of the survey. This could have introduced bias into the results.

Although this is an issue is not considered to be significant as there is an expectation that individuals will look at their work email at least at some point in their working pattern. In addition, paper copies were available for use should a lack of response be noted. There are further issues of bias that may be introduced

as a result of the chosen deployment system. There is a limit on the types of questions and the layout possible. As a result there was likely to be a compromise in some cases which could affect the survey. In addition, a degree of technological literacy is required. In a similar way to not using email, this could have excluded certain participants. In order to maintain anonymity in the process it was also not possible to use the system to ensure that the selected participants are the ones who have responded. There needed to be a degree of trust between the researcher and the institutions. Issues relating to the sample groups have been discussed at length and it was considered that the methods used were justified within the constraints of the research programme. Close monitoring of the process was required throughout to ensure that the responses are representative and not coerced in any way.

The content of the questions and response possibilities may have been a source of bias in themselves. It was essential that the questions were written for the expected audience to ensure understanding (Pfleeger and Kitchenham 2002b). This is true both of the questionnaire and interview portions. For the questionnaires a two stage evaluation of the instrument was undertaken to ensure that it is appropriate. Firstly, the questions were piloted with IT experts to ensure that they are asking what they were intending to ask. The participants in this case were asked to report back on their opinions of the question quality and the expected responses. Secondly, the questions were piloted on non-experts to ensure that they provided enough information and could be effectively understood in order to be answered by anyone in the population. Again, feedback on the questions was gathered. Once completed, the test data was analysed to ensure that the range of possible answers associated with a question yielded the type of responses that could be used to address the research questions.

For the interviews, the questions were tested on a small trial group to refine them to ensure that they are easily understandable. The semi-structured approach did provide scope for the researcher to explain the meaning of questions as in collaborative theory (Clarke 2006) where researchers work with respondents to ensure the meaning of the question is understood. Conrad and Schober (2000) found that this approach reduced misunderstanding of questions, particularly more complex ones, in up to 22% of cases. In addition, due to the nature of the complicated questions being asked in part of the interview process, being able to

explain and discuss the question prior to eliciting an answer as well as using probes to expand on answers, significantly enhances the quality of responses (Schober and Conrad 1997).

In explaining the meaning of questions it is essential to ensure that the respondent is not biased by what the researcher says. In explaining the question or providing additional probes it is possible to influence the answer in a biased way. To help prevent this, potential probes were written into the interview schedule. Bias may have also been introduced in the data gathering process itself. During the data gathering process there may have been issues associated with the comprehension of the question which have already been considered. Once the question is interpreted, the respondent must retrieve the required information, one retrieved a judgement needs to be made in order to fit the answer that the respondent has to the possible answer categories in a questionnaire for example.

Lee *et al* (1999) identifies that the first point at which error or bias may be introduced in the response is during the recall of information. It may be that the information being asked for may not have been encoded in the first place and cannot therefore be recalled at all. In the survey and the interview respondents are being asked about things that they may not have actively thought about before and therefore there is a likelihood that either a lack of encoding or a degree of forgetting may have taken place. In addition to this, issues related to estimation, judgement, satisficing and appeasement must be considered. Although these are concerns and need to be recognised, they are ultimately outside of the remit of the researcher to control and must be accepted as possible limitations.

In addition, the questionnaire and interviews were all based on self-reported elements. In these cases there may have been a degree of under or over reporting in terms of frequencies as noted by Tourangeau *et al* (2000). This is recognised and accepted as part of the error that is introduced by working with human beings who either forget things or cannot remember every specific event, instead relying upon estimation and judgement (Conrad and Schober 2000).

The possibility that logistical limitations may have introduced bias and error have already been discussed at length and steps were put into place to limit the effects to an acceptable level. The final area in which bias and error may have been introduced into the process was during the analysis and reporting phase of the research.

There is inherently likely to be a degree of bias here towards the answering of the research question. The questionnaire and interview responses may yield data and information that is not entirely relevant to the answering of the research question. As such, it may not be included for analysis. Where data was included it was important that the researcher presents it as it was found without any manipulation that may have introduced bias. Manipulation of the data was carried out to address elements of the objectives but cases that failed to support previously made assertions were not excluded simply to enable the points to be made. Throughout this chapter possible causes of bias and error have been discussed and it has been demonstrated here and throughout the whole research methods chapter that the methods have been considered in depth, issues addressed and approaches put in place to ensure that the data and information gathered is as valid as possible.

There were also limitations introduced through the use of bivariate analysis. Filzmoser et al (2010) discuss that whilst bivariate analysis can be useful in considering the relationship between two variables, the outcomes are limited and may be easily skewed by the data itself. Whilst bivariate testing can produce strong results showing a relationship between two variables (Pallant 2010) the main issue with the approach is that it only shows relationships (Bryman 2008). Causality cannot be inferred from the results of bivariate analysis, only relationship. This is significant as it limits the conclusions that are drawn. It was therefore not possible to state which variable was having an influence on the other. In the case of role, it was possible to state that different roles experienced email use in different ways but not whether role itself was the influencing factor in each of the analyses.

Hawkes (2003) further points out that bivariate analysis that is not carried out carefully can result in the presentation of spurious relationships. Spurious relationships occur where two unrelated variables appear to impact upon one another. In the example used by Hawkes (2003) frequency of shaving was correlated with potential of having a heart attack. Whilst this is a clearly spurious relationship, the results were mediated by a third factor which introduced likelihood of looking after oneself. Whilst every effort was made to ensure this did not happen within this study, it is a recognised issue associated with bivariate analysis. As a result of this limitation, the outcomes of the study are limited in terms of the claims that can be made relating to the value of the proposed

conceptual framework. The overall limitation of a failure to use multivariate analysis is discussed in chapter 6.9.

3.14 Ethical considerations

Considering the ethical implications of research is an essential part of any research activity. Consideration of whether or not the proposed research may cause harm to come to the participants must be made and precautions should be taken in the treatment of participants and consideration of activities that would not be appropriate to engage in considering the research parameters. This chapter will consider overarching ethical considerations as well as identifying specific issues that may arise in this piece of research. Bryman (2008) considers that ethical issues in research should be considered as a debate insofar as one viewpoint on what is or is not ethically acceptable may be refuted by another viewpoint. Indeed, modern viewpoints on the subject of ethics have viewed the subject as characteristic of 'moral panic' where researchers shy away from more contentious methods for fear of their work not being accepted (Van den Hoonaard 2001).

After careful consideration of a variety of viewpoints it was the decision of this researcher to adopt the Universalism approach to research ethics. As seen in the work of Erikson (1967) and Dingwall (1980), this approach takes the view that ethical precepts must never be broken and that engaging in unethical practices will damage the integrity of the research to an irreparable level. Ethical considerations have been made in relation to the proposed methods of gathering data (ESRC 2015). It was the opinion of the proposer that no significant ethical issues were identified that would warrant the submission of a separate consideration of ethical issues. Importantly no minors or vulnerable adults were included within this research, all research participants were consenting adults. The ESRC Research Ethics Framework was consulted during the preparation the primary research activities (ESRC 2015).

The major ethical consideration that were made during this study related to the protection of the identities of those involved. Throughout the research all participants only become involved voluntarily and were made aware that they were participating in research (ESRC 2015). They were also made aware that the findings of the research will be published. However, the published research does not contain any method by which the participants may be identified (ESRC 2015).

There is understandable concern that by identifying what college they work for as well as their gender, age category and job role a person may easily be identified. To ensure this did not happen the data will be presented in such a way as to achieve this. Additionally, the raw data will not be released to colleges for their own analysis. Similar approaches were taken for interview responses where it may have been possible to identify participants by their role and description of day-to-day duties. This information was sanitised and only presented in aggregated format to reduce the possibility of identification. In addition, the selected method of telephone interviewing has been shown to enhance perceptions of anonymity (Jackle 2006).

All information gathered was done so anonymously and any responses that may have allowed for the easy identification of the participant were adjusted to ensure that no harm came to them as a result of their submission. Where it was envisaged that this would be difficult to achieve, the subjects were not be asked questions that may have put them in a difficult position once the research was published. Permission to conduct the survey within the organisations was sought and written consent obtained. All of the results have been presented and discussed objectively regardless of the opinions and views of the researcher.

During the data gathering phases it was the responsibility of the individual colleges to ensure that the instruments designed to gather information are implemented where they have identified that they are prepared to participate. In these cases the methods of implementation were explicit to ensure that no undue pressure is put on staff in the colleges to participate. A uniform approach was adopted, agreed by those colleges participating, to ensure this took place whilst attempting to achieve a high level of compliance in order to generate feedback. Where data is collected electronically it was done so under the guidelines laid out in the Data Protection Act. All data was kept securely and was only available to the researcher during the period of the research. Individual colleges were not offered the data relating to their organisations and when the data was published was done so in an aggregated fashion so that could not be reverse engineered for uses by individual colleges. Data gathered from individual colleges was not shared with other colleges in the study group. No single college was aware of which other colleges were participating and each was referred to by a designated code during all data

gathering and discussion exercises. This anonymity was extended throughout the research and included recognition of support sections which only referred to the support and participation of the sector as a whole. It was made clear that any attempt to purchase data relating to the responses offered by other colleges would be reported to Collegau Cymru who will take action as the coordinating body of colleges in Wales.

The only conflict of interest that was envisaged was that the researcher works within the sector and within one of the institutions in which the research has taken place. In order to minimise the impact the same sampling methods as well as implementation of the solutions was exercised. All institutions were offered the same level of contact and support on this matter. When undertaking the research the home institution was made aware that this research is impartial and in no way will be made to benefit or cause harm to the institution.

3.15 Conclusions on Methodology

This chapter has clearly stated the philosophical underpinnings of the research undertaken and shown how the primary data collection tools were decided upon, designed, tested and implemented. A clear discussion of the overall practical implementation of the strategy to include how analysis and discussion was undertaken has also been provided. Through epistemological discussion it was decided to taken a Critical Realist approach allowing for elements of Positivism to be included but also that these can be framed within the context of the environment to add richness to the analysis. The approach looks at social structures and changes to these by stressing an inductive approach to establish the existence of structures before seeking to change them. In the case of this thesis, the proposed conceptual framework will need to exist within the structure currently present. Establishing this and then adapting the conceptual framework to sit within and have an impact upon these will be required. This approach had not been implemented in large scale email research in the past. Larger scale studies such as Daft and Lengel (1986), Whittaker and Sidner (1996) and Fisher *et al* (2006) have tended to use positivist approaches which have shown what is happening but have not sought to explain the observations in terms of human impact.

Discussion of ontological positions has yielded a constructivist approach to studying email usage. This approach may seem to be at odds with Critical Realism but will allow for quantitative and qualitative approaches to be used to explain structures, look at opportunities for change and measure this. Again, the combination of this ontological position with a critical realist approach is a new way of researching email use. A research paradigm that allows for both quantitative and qualitative research to take place was selected. Whilst this may first appear as a lack of decision between the two but it is believed that by including elements of both it is possible to lessen the impact of the weaknesses of each (Bryman 2008). Quantitative data was gathered to measure opinion, usage and other quantifiable variables whilst qualitative information was gathered to further explain the observations and provide real world, tangible support for the findings.

The methods used to achieve phases one and two of the research have been discussed and the approaches justified. In each case, the design has been discussed and the implementation plan detailed to show how bias, error and limitations have been taken into account. The population and sample approaches have been discussed and the nature of analysis has been made and clear direction has been shown for every question included in both phase one and two of the research. Expected outcomes have also been discussed but these might vary depending on the findings. Provision for analysis via SPSS has been made and a number of statistical tests will be undertaken to validate the data.

Limitations have been addressed throughout the chapter. In each case they have been identified, steps for mitigation discussed and overall justification for the approach made. It is therefore considered that the methods proposed represent a sound approach to addressing the research objectives. Finally, ethical considerations have been made and the need for anonymity throughout the research has been strongly highlighted. Based on the methodology chapter it was decided that the research objectives can be adequately addressed using the methods proposed here. Deployment schedules will be followed and the data will be analysed within the key themes identified in the literature review.

Chapter 4 Results

4.1 Introduction

This series of chapters will present the results gathered in both phase one and some from phase two of the research, the majority of phase two results are integrated into the discussion as quotes and feedback. The results will be presented along the same thematic lines explored during the literature review. In addition, in each thematic area the research questions to which the results are relevant will be highlighted.

Initially, response rates and distribution will be reported on. This will help to demonstrate the validity of the data set in the first instance. Representation of the population under study will be discussed. Basic statistics will be provided on the demographic split of the data. In addition, information will be provided on the nature of the interview responses to include the roles investigated and a basic overview of their job types.

The following sub-chapters will present the results related to role, culture and relationships. It was clearly established in the literature review through exploration of MRT, organisational culture, role culture and working relationships that this impacts on email usage

Data relating to changes to email usage will also be presented. It has been established that this has a direct implication on email overload which is a key justification for the existence of the suggested conceptual framework discussed in the literature review. In this sub-chapter sent message, received message and time spent will be presented, In addition the implications of perceptions of change and perceptions of maximum manageable sent and received messages will be included.

The next sub-chapter will present results related to the perceived future directions of email. This is important as it considers the impact of changing cultures, behavioural adjustment and technological change all of which impact upon the proposed conceptual framework.

Finally, the following sub-chapter will present results related to components of the conceptual framework which will be used in the discussion to bring together all elements of discussion to refine the proposed conceptual framework.

Figure 4.1 below shows how the research questions generated from the literature review are considered during each of the results chapters.

Table 4.1. Mapping research questions to results chapters

| Research Question | Relevant Results Chapter |
|--|--------------------------|
| 1. What impact does culture have on email use? | 4.3, 4.4, 4.5 |
| 2. How do users view the constituents of working relationships? | 4.4 |
| 3. How has email use changed? | 4.5 |
| 4. Does email overload exist in the Welsh FE sector? | 4.3, 4.4, 4.5 |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | 4.3, 4.5 |
| 6. How do users perceive email use will change in the future? | 4.6 |
| 7. What behavioural changes could be implemented to support change? | 4.6 |
| 8. How relevant is the conceptual framework proposed in the literature review? | 4.7 |

4.2 Response rates, distribution and representation

A total of 1198 questionnaires were returned from all nineteen Further Education (FE) Institutions in Wales. This included seventeen FE Colleges and two designated FE institutions. Of the returned questionnaires 1010 were identified as being complete in that they contained answers to the independent variables.

The method called for a 10% sample from each institution. Whilst this was not met individually by each participating institution, the total response rate represents an 11.5% response rate which can be considered as significant at a 99% confidence level with a confidence interval of 3.82. Table 4.2 demonstrates the response rate from each institution. The Colleges are listed based upon the college list used by Colegau Cymru to identify FE colleges rather than by response rates. The most up to date employment statistics for Welsh FE institutions cite full time equivalent employment statistics from the academic year 2011/12 (<https://statswales.gov.uk>) which are used to calculate the response rate.

Table 4.2. Response rates by institution

| Institution | FTE employment | Responses | % return |
|---------------------------|----------------|-----------|----------|
| Coleg Ceredigion | 130 | 1 | >1 |
| Coleg Gwent | 955 | 44 | 5 |
| Merthyr Tydfil College | * | 26 | |
| Coleg Sir Gar | 535 | 82 | 15 |
| Neath Port Talbot College | 620 | 106 | 17 |
| Grwp Llandrillo Menai | 1420 | 143 | 10 |
| Pembrokeshire College | 405 | 115 | 28 |
| Yale College Wrexham | 465 | 32 | 7 |
| Cardiff and Vale College | 800 | 96 | 12 |
| Deeside College | 665 | 12 | 2 |
| Coleg Morgannwg | 420 | 54 | 13 |
| Ystrad Mynach College | 400 | 48 | 12 |
| Gower College Swansea | 815 | 114 | 14 |
| YMCA Community College | 10 | 7 | 70 |
| Coleg Powys | 240 | 49 | 20 |
| Coleg Harlech (WEA North) | 120 | 14 | 11 |
| Bridgend College | 605 | 55 | 9 |
| St Davids College | 100 | 4 | 4 |
| WEA South | 85 | 8 | 10 |
| Totals: | 8790 (exc. *) | 1010 | ≈11.5% |

Coleg Ceredigion returned one questionnaire and then opted not to participate any further in the study. Deeside College participated initially, returning twelve completed questionnaires. After a short period the College felt that it was unable to participate any further and withdrew from the study. The Colleges agreed that the responses may be retained but that they will not be contacted any further as part of the study.

As shown in table 4.3, 65.2% of the respondents were female. This is in line with current information on the gender split in the Welsh Further Education sector which estimates that 61% of staff are female (direct.gov 2014). Although slightly above the percentage for female staff, it is considered that the population sampled is representative in terms of gender. Analysis was initially undertaken into the gender influence on email usage but no differences worth reporting were observed.

Data gathered from the eight participating Colleges that was used to formulate the initial sample size was used to calculate the expected spread of results based on the roles reported by the respective Human Resources Departments. An average of the eight was taken to estimate the expected percentage split if the responses were returned as expected.

The estimated responses would have been represented by 66% Academic, 27% Business Support, 5% Middle Management and 2% Senior Management. The data gathered does not match the expected profile in that 47.6% of respondents were Academic, 31.8% were Business Support, 16% were Middle Management and 4.6% were Senior Management. It is not clear what has caused the difference in the response rates but it is suggested that there may have been a greater willingness on behalf of roles other than Academic to respond to the survey. It may also be that Academics have a greater work load which has reduced the response rate. This aside, the response rate still represents a pyramid with the greatest number of responses coming from Academics and the fewest coming from Senior Managers. As such, the data set is still representative of the study population.

Table 4.4 indicates the respondents age categories. This data is not used for detailed analysis as research has not shown that age has a significant impact on email usage behaviour (Sillince *et al* 1998) and it was not within the original scope of the study. The data was collected to ensure that a representative sample was collected. There is no data available to compare the responses to and comparative data from Colleges in England only includes academic staff. Compared with 2011 census data from Wales the split in age categories suggests that a representative sample has been selected when compared to national population if not the population directly under study, namely Welsh FE staff.

Table 4.3. Gender distribution of respondents

| | | Frequency | Percent |
|---------|--------|-----------|---------|
| | Male | 347 | 34.4 |
| | Female | 650 | 64.4 |
| | Total | 997 | 98.7 |
| Missing | System | 13 | 1.3 |
| Total | | 1010 | 100.0 |

A total of twenty interviews were planned across five participating colleges. Unfortunately, one of the participating institutions felt that due to a change management process they would be unable to participate in the interview phase of the study. Further institutions were contacted but similar responses were received.

Table 4.4. Age group distribution of respondents

| | | Frequency | Percent |
|---------|----------|-----------|---------|
| | Under 20 | 3 | .3 |
| | 21-30 | 115 | 11.4 |
| | 31-40 | 220 | 21.8 |
| | 41-50 | 317 | 31.4 |
| | 51-60 | 284 | 28.1 |
| | Over 60 | 65 | 6.4 |
| | Total | 1004 | 99.4 |
| Missing | System | 6 | .6 |
| Total | | 1010 | 100.0 |

It was discussed in the methodology that obtaining interview participation can be difficult and so it has proved to be.

A total of fifteen interviews were conducted and the spread of roles and geographical locations of Colleges was maintained throughout this process. Whilst the participation rate is lower than initially anticipated it is important to note that the findings from the interviews will be used within the context of the discussions of the questionnaire results rather than used to generate conclusions entirely on their own. As such, the slightly lower participation rate can be tolerated.

Four interviews were conducted with senior managers from the participating colleges. There is representation from two assistant principals, a College Principal and a senior manager charged with leading educational transformation. Each of these is typical for the senior manager role. Four interviews were conducted with middle managers from participating colleges. There is representation from a change manager, a facilities and estates manager, an academic manager and a governance officer. These jobs represent a spread of activities within the middle management role. Four interviews were conducted with business support staff from participating colleges. There is representation from an IT technician, an exams officer, a library supervisor and a transport coordinator. Again, these are representative of the types of jobs found within the business support role.

Three interviews were conducted with academics from participating colleges. It should be noted that there was increased difficulty in finding academic staff to participate in the study and that one interview was lost due to technical failure of the recording equipment. One of the participants only had lecturing responsibilities, one had lecturing as well as quality assurance responsibilities. One lecturer also assumed responsibilities as a deputy head. Under the role

descriptors, this job does not fall within the definition of a middle manager as the individual will hold an academic contract with suitable remission to undertake the additional duties of a deputy head.

4.3 Results relating to culture

The results in this chapter relate to the cultural influences exerted by email. Evidence is provided to address research question one, four and five. The roles used for the meso-cultural analysis are taken directly from the roles identified in the sector. During the literature review and design of the questionnaire it was identified that there were four key employment rolls within the sector, Senior Managers, Middle Managers, Academic and Business Support. These roles possess the criteria laid down by Handy (1976) to define them as specific roles within the organisations which contribute to the overall cultural structure. Each of these roles is clearly identified by separate pay scales that are applied within the common contract framework in existence in Welsh FE as well as the different common contracts that are used for employment. In addition to these technical delineations, during self-reporting, Human Resources Departments from across the Colleges identified these specific roles. Within the questionnaire Academic and Business Support respondents were asked to specify their job within the role. The purpose of this is to allow individuals within the role to be grouped by the job they perform. The meso-cultural level is defined by the key roles identified. At the micro-cultural level, as pay scales and contracts are common, the analysis will be conducted by job.

For Business Support there were fourteen different job groups identified within the role. A number of these groups were only represented by fewer than ten respondents. As such, the analysis of these would not produce useful findings. To enable the analysis and to reduce the complexity the top four most represented groups were selected for analysis. These groups were Systems / IT Development, General Admin, Student Support / Learner Services and Assessor / Commercial Trainer. It is worth noting that the response rates in these groups were still low and there is some imbalance in terms of the numbers in each group.

For the Academic role there were forty different job groups identified. As with Business Support groups there was an issue of small response numbers in the different groups. In this case, to strengthen the analysis, it was decided to combine the job groups along the broad academic groupings used with the sector. This

significantly increased and balanced the response numbers within the groups whilst enabling meaningful analysis to take place. The identified groups were Health Care Services and Independent Living Skills (HCSILS), Humanities, IT and Essential Skills (ITES), and Science Engineering and Construction (SEC). The unspecified Academic group was also included to investigate the impact it had on the overall analysis. The results relating to role are demonstrated in this chapter. Further results relating to the Business Support and Academic micro-cultural analysis can be found in Appendix B presented in Silverstone (2014c, 2015). Detailed discussion can also be found in the same. Sent and received message load along with perception of change are shown in tables 4.5 to 4.8. The results show that a high proportion of respondents believe that email use has changed in recent years.

Table 4.5. Changes in sent message load by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-----------------|--|--|---|--|---------------|
| Increased | 40 88.9% | 147 93.0% | 248 79.7% | 394 83.5% | 829 84.1% |
| Decreased | 1 2.2% | 2 1.3% | 12 3.9% | 12 2.5% | 27 2.7% |
| Stayed the same | 4 8.9% | 9 5.7% | 51 16.4% | 66 14.0% | 130 13.2% |
| Total | 45 100.0% | 158 100.0% | 311 100.0% | 472 100.0% | 986 100.0% |

Table 4.6 Changes in received message load by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-----------------|--|--|---|--|---------------|
| Stayed the same | 3 7.0% | 12 7.6% | 42 13.3% | 44 9.2% | 101 10.2% |
| Increased | 40 93.0% | 145 91.8% | 265 84.1% | 417 87.6% | 867 87.4% |
| Decreased | 0 .0% | 1 .6% | 8 2.5% | 15 3.2% | 24 2.4% |
| Total | 43 100.0% | 158 100.0% | 315 100.0% | 476 100.0% | 992 100.0% |

Table 4.7. Messages sent per day by employment role.

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|--|--|---|---|--------------|
| 0-10 | 1 2.2% | 13 8.1% | 102 32.0% | 255 53.0% | 371 36.9% |
| 11-20 | 7 15.2% | 44 27.5% | 93 29.2% | 157 32.6% | 301 29.9% |
| 21-30 | 12 26.1% | 40 25.0% | 70 21.9% | 46 9.6% | 168 16.7% |
| 31-40 | 14 30.4% | 22 13.8% | 31 9.7% | 16 3.3% | 83 8.3% |
| 41-50 | 8 17.4% | 26 16.3% | 14 4.4% | 5 1.0% | 53 5.3% |
| 51-60 | 2 4.3% | 7 4.4% | 5 1.6% | 0 .0% | 14 1.4% |
| 61-70 | 0 .0% | 3 1.9% | 2 .6% | 0 .0% | 5 .5% |
| 71-80 | 0 .0% | 2 1.3% | 1 .3% | 1 .2% | 4 .4% |
| 81 + | 2 4.3% | 3 1.9% | 1 .3% | 1 .2% | 7 .7% |
| Total | 46 | 160 | 319 | 481 | 1006 |

Figure 4.7a. Graphical representation of messages sent by employment role.

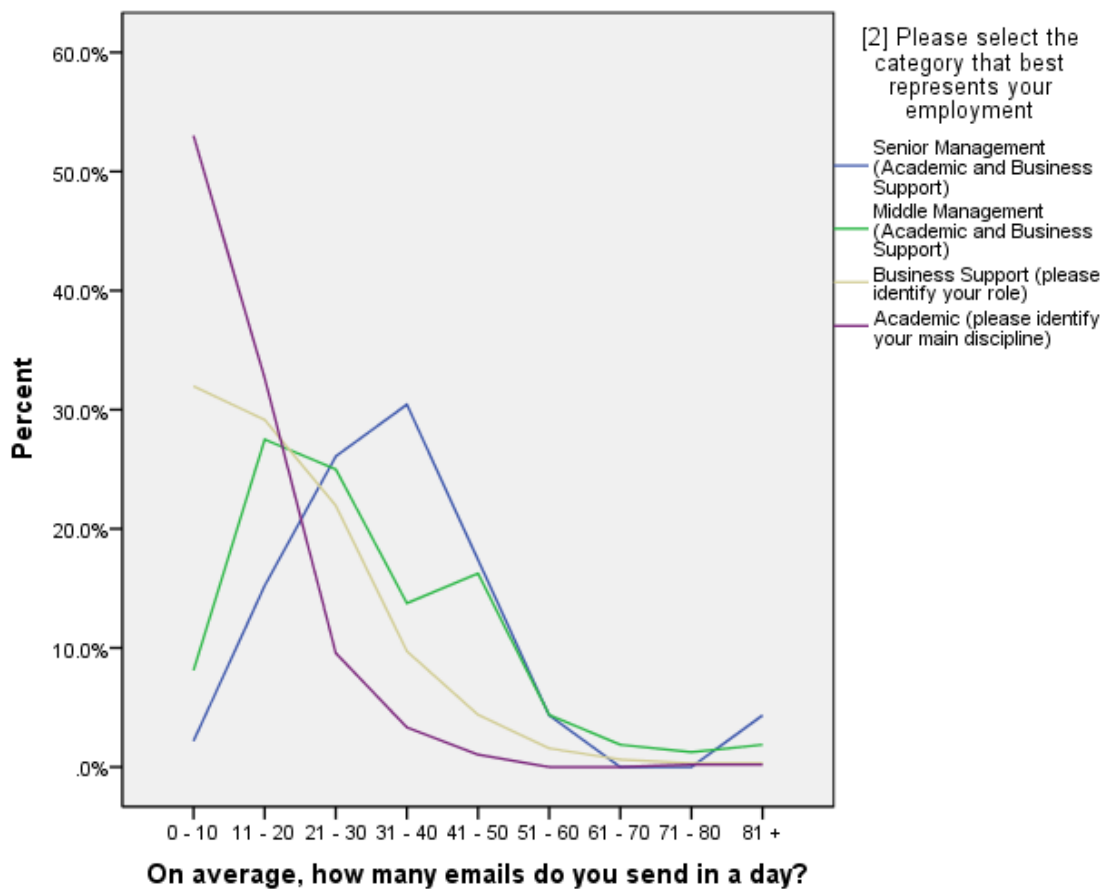
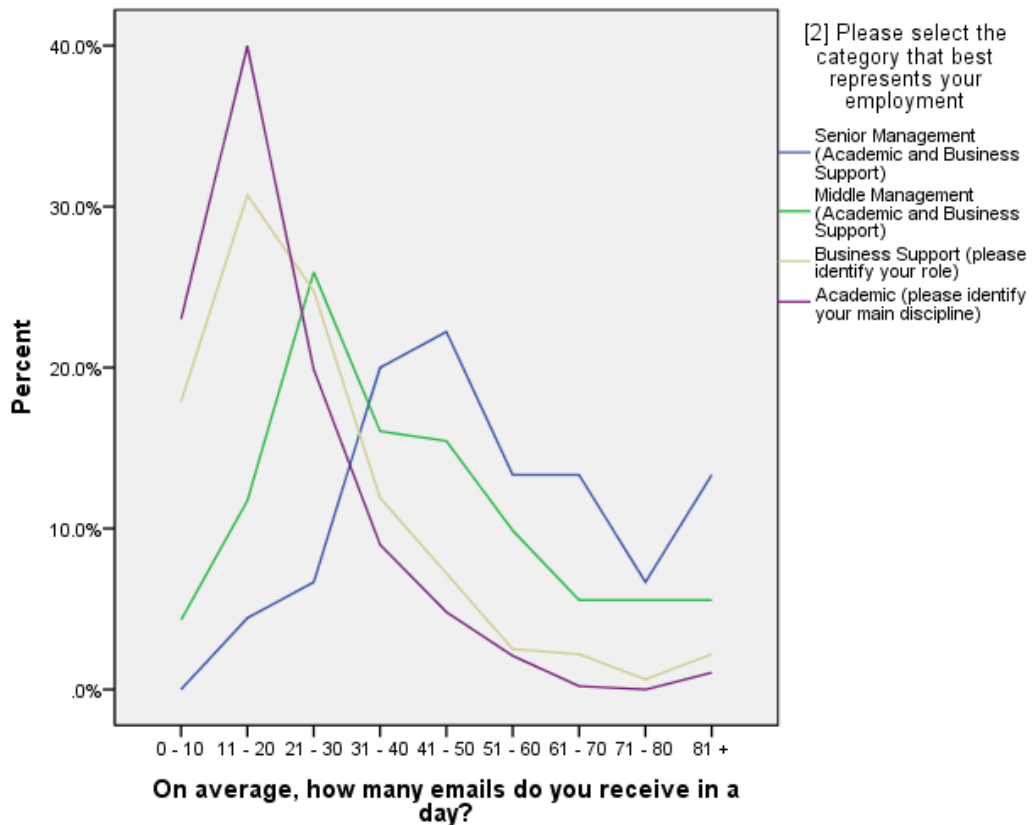


Table 4.8. Messages received per day by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|---|---|--|---|--------------|
| 0-10 | 0 0.0% | 7 4.3% | 57 17.9% | 110 23.0% | 174 17.3% |
| 11-20 | 2 4.4% | 19 11.7% | 98 30.7% | 191 40.0% | 310 30.9% |
| 21-30 | 3 6.7% | 42 25.9% | 79 24.8% | 95 19.9% | 219 21.8% |
| 31-40 | 9 20.0% | 26 16.0% | 38 11.9% | 43 9.0% | 116 11.6% |
| 41-50 | 10 22.2% | 25 15.4% | 23 7.2% | 23 4.8% | 81 8.1% |
| 51-60 | 6 13.3% | 16 9.9% | 8 2.5% | 10 2.1% | 40 4.0% |
| 61-70 | 6 13.3% | 9 5.6% | 7 2.2% | 1 .2% | 23 2.3% |
| 71-80 | 3 6.7% | 9 5.6% | 2 .6% | 0 .0% | 14 1.4% |
| 81 + | 6 13.3% | 9 5.6% | 7 2.2% | 5 1.0% | 27 2.7% |
| Total | 45 | 162 | 319 | 478 | 1004 |

Figure 4.8a. Graphical representation of messages received by employment role.



The average time spent, by role, was gathered using a sliding scale from 0 to 180 minutes. Senior management spent on average 90.02 minutes per day, middle management spent 100.12 minutes per day, Business Support spent 68.28 minutes per day and Academics spent 47.04 minutes per day.

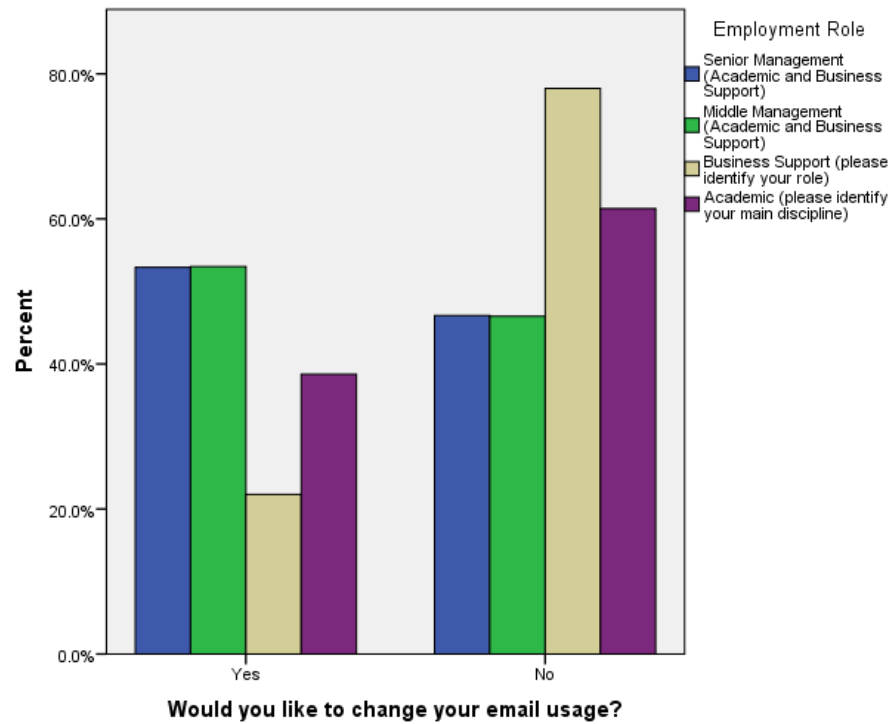
The number of messages that users perceived were manageable to send and receive in a day was gathered using an open ended text box. Senior managers perceived that an average of 34.74 messages could be sent and 37.00 could be received. Middle managers perceived that an average of 25.29 messages could be sent and 27.70 could be received. Business Support perceived that an average of 23.25 messages could be sent and 23.65 could be received. Academics perceived that an average of 14.19 messages could be sent and 15.61 could be received.

Table 4.9 below illustrates the proportions of users who wished to change their email usage, followed up by an open ended question asking for justification. Reasons reported were volume and content management and the desire to receive fewer unsolicited emails. For those who did not wish to change their usage, respondents generally believed that the current levels of usage are manageable but should not increase (see table 4.10). Data was gathered by way of an open ended question and coded using emerging themes.

Table 4.9. Desire to change email usage by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|--|--|---|---|----------------|
| Yes | 24 53.3% | 86 53.4% | 70 22.0% | 184 38.6% | 364 36.4% |
| No | 21 46.7% | 75 46.6% | 248 78.0% | 293 61.4% | 637 63.6% |
| Total | 45 100.0% | 161 100.0% | 318 100.0% | 477 100.0% | 1001 100.0% |

Figure4.9a. Graphical representation of the desire to change email usage by employment role.



Respondents were asked whether they consider others before sending emails, shown in table 4.11, and justifications requested. The main themes reported were that users tended to consider their own and others' time management and expectations as well as the appearances and interpretation of the messages they were sending (see table 4.12). Data was gathered by way of an open ended question and coded using emerging themes.

Table 4.10. Reasons for to the desire to change email usage, by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|---|---|---|---|---|----------------|
| Not enhancing my role (yes) | 0 .0% | 0 .0% | 1 .3% | 3 .6% | 4 .4% |
| Volume and content management (yes) | 10 21.7% | 37 22.8% | 22 6.9% | 56 11.6% | 125 12.4% |
| Time (yes) | 2 4.3% | 6 3.7% | 4 1.3% | 17 3.5% | 29 2.9% |
| Too dependent (yes) | 0 .0% | 3 1.9% | 1 .3% | 9 1.9% | 13 1.3% |
| Fewer unsolicited communications (yes) | 5 10.9% | 22 13.6% | 19 5.9% | 63 13.1% | 109 10.8% |
| Not confident in using systems (yes) | 0 .0% | 0 .0% | 0 .0% | 1 .2% | 1 .1% |
| Improve personal contact (yes) | 3 6.5% | 10 6.2% | 15 4.7% | 12 2.5% | 40 4.0% |
| Other (yes) | 2 4.3% | 0 .0% | 3 .9% | 4 .8% | 9 .9% |
| No comment made | 17 37.0% | 51 31.5% | 113 35.3% | 180 37.4% | 361 35.8% |
| Actively avoiding other methods of communicating (no) | 0 .0% | 0 .0% | 0 .0% | 1 .2% | 1 .1% |
| How could change be made (no) | 0 .0% | 2 1.2% | 3 .9% | 5 1.0% | 10 1.0% |
| Saves time (no) | 1 2.2% | 0 .0% | 1 .3% | 8 1.7% | 10 1.0% |
| Essential for job role (no) | 1 2.2% | 9 5.6% | 22 6.9% | 18 3.7% | 50 5.0% |
| Manageable volume and well managed n.b. many state that it should not increase (no) | 5 10.9% | 21 13.0% | 105 32.8% | 97 20.2% | 228 22.6% |
| Ease of use (no) | 0 .0% | 1 .6% | 11 3.4% | 7 1.5% | 19 1.9% |
| Total | 46 100.0% | 162 100.0% | 320 100.0% | 481 100.0% | 1009 100.0% |

Table 4.11. Do you consider others when using email?

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|---|---|--|---|----------------|
| Yes | 42 91.3% | 141 87.6% | 275 86.2% | 400 83.2% | 858 85.2% |
| No | 4 8.7% | 20 12.4% | 44 13.8% | 81 16.8% | 149 14.8% |
| Total | 46 100.0% | 161 100.0% | 319 100.0% | 481 100.0% | 1007 100.0% |

Table 4.12 Considerations made of others when using email by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|---|--|--|---|--|----------------|
| Time management (self and others, is it needed, managed expectations) | 7 15.2% | 20 12.3% | 50 15.6% | 81 16.8% | 158 15.6% |
| Part of the job (needs to be done, told to work this way) | 0 0% | 5 3.1% | 10 3.1% | 16 3.3% | 31 3.1% |
| See no issues | 0 0% | 2 1.2% | 10 3.1% | 10 2.1% | 22 2.2% |
| Other methods may be more appropriate | 3 6.5% | 8 4.9% | 17 5.3% | 10 2.1% | 38 3.8% |
| Appearances and interpretation of the message, recordability | 16 34.8% | 60 37.0% | 115 35.8% | 170 35.3% | 361 35.7% |
| Positives of email | 0 0% | 2 1.2% | 0 0% | 9 1.9% | 11 1.1% |
| Other non-specific response | 5 10.9% | 4 2.5% | 14 4.4% | 18 3.7% | 41 4.1% |
| No answer | 15 32.6% | 61 37.7% | 105 32.7% | 167 34.7% | 348 34.5% |
| Total | 46 100.0% | 162 100.0% | 321 100.0% | 481 100.0% | 1010 100.0% |

Respondents were asked to report whether they waste any time when using email shown in table 4.13. Those who answered yes to this were asked to provide an estimate of wasted time. Senior managers reported an average of 19.59% wastage. Middle managers reported an average of 22.23% wastage. Business Support reported an average of 16.32% wastage. Academics reported an average of 18.53% wastage.

Table 4.13. Perceptions of wasted time by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|--|--|---|---|----------------|
| No | 13 28.3% | 49 30.4% | 168 52.7% | 176 36.9% | 406 40.5% |
| Yes | 33 71.7% | 112 69.6% | 151 47.3% | 301 63.1% | 597 59.5% |
| Total | 46 100.0% | 161 100.0% | 319 100.0% | 477 100.0% | 1003 100.0% |

Reasons for and definitions of wasted time were provided by the respondents and the receipt of work related emails that are not relevant or duplicated and personal management issues were cited as the most common (see table 4.14). Data was gathered by way of an open ended question and coded using emerging themes.

The results show that work related emails that are not relevant or are duplicated are of the greatest concern to users.

Table 4.14 User derived reasons for wasted time by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|--|---|---|--|---|----------------|
| Spam | 2 4.3% | 13 8.0% | 15 4.7% | 18 3.7% | 48 4.8% |
| Work related mails that are not relevant or are duplicated | 24 52.2% | 67 41.4% | 93 29.0% | 228 47.4% | 412 40.8% |
| Ensuring content is worded appropriately or receiving message written poorly | 1 2.2% | 8 4.9% | 8 2.5% | 9 1.9% | 26 2.6% |
| Undertaking follow up activities due to lack of understanding | 0 .0% | 5 3.1% | 12 3.7% | 8 1.7% | 25 2.5% |
| Technical issues | 1 2.2% | 0 .0% | 3 .9% | 7 1.5% | 11 1.1% |
| Using inappropriately (incorrect method or content) | 4 8.7% | 7 4.3% | 8 2.5% | 10 2.1% | 29 2.9% |
| Digging through archived messages | 1 2.2% | 3 1.9% | 3 .9% | 1 .2% | 8 .8% |
| Personal management issues including private use | 0 .0% | 11 6.8% | 18 5.6% | 35 7.3% | 64 6.3% |
| Other, non-specific time wasting | 0 .0% | 1 .6% | 2 .6% | 3 .6% | 6 .6% |
| None | 13 28.3% | 47 29.0% | 159 49.5% | 162 33.7% | 381 37.7% |
| Total | 46 100.0% | 162 100.0% | 321 100.0% | 481 100.0% | 1010 100.0% |

As well as identifying behaviours, users were asked to select the one that they thought was most important and provide an example. The most commonly reported related to irrelevant content or repeated messages. Poorly written messages and the desire to avoid face-to-face contact were also key issues reported. Bullying, inappropriate content and messages with an aggressive tone were also reported.

Respondents were also asked to identify behaviours from a list established through review of existing literature (see table 4.15). In addition, users were asked to report on the issue they thought most important. Data was gathered by way of an open ended question and coded using the responses, shown in table 4.16, as coded responses. The user perceptions show that irrelevant content is one of the greatest concerns when selected from existing criteria.

Table 4.15. Wasteful behaviours by employment role

| Response | Senior Management | Middle Management | Business Support | Academics |
|--|-------------------|-------------------|------------------|-----------|
| Inappropriate content | 30.4% | 29.6% | 12.5% | 13.7% |
| Aggressive tone | 56.5% | 53.7% | 24.6% | 29.1% |
| Bullying | 10.9% | 19.1% | 4.0% | 13.1% |
| Content you found offensive | 13% | 16% | 6.5% | 10.6% |
| Sent by the sender to avoid face-to-face contact | 63% | 71% | 49.2% | 52.6% |
| Poorly written | 78.3% | 81.5% | 66.4% | 68.2% |
| Hastily composed without due consideration | 71.7% | 76.5% | 53.3% | 57.8% |
| Content that is not relevant to you | 78.3% | 83.3% | 76.6% | 83.6% |
| Same message from multiple sources | 69.6% | 71.6% | 48% | 67.4% |
| None of the above | 2.2% | 1.2% | 8.1% | 6.4% |

Table 4.16. Most important issues related to wasteful behaviour by role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|--|---|---|--|---|----------------|
| Inappropriate content | 5 10.9% | 8 4.9% | 16 5.0% | 12 2.5% | 41 4.1% |
| Aggressive tone (used interchangeably with bullying) | 6 13.0% | 20 12.3% | 20 6.2% | 42 8.7% | 88 8.7% |
| Bullying (used interchangeably with aggressive tone) | 0 .0% | 7 4.3% | 5 1.6% | 13 2.7% | 25 2.5% |
| Content you found offensive | 1 2.2% | 1 .6% | 0 .0% | 0 .0% | 2 .2% |
| Sent by the sender to avoid face-to-face contact | 8 17.4% | 21 13.0% | 28 8.7% | 28 5.8% | 85 8.4% |
| Poorly written | 5 10.9% | 14 8.6% | 50 15.6% | 50 10.4% | 119 11.8% |
| Hastily composed without due consideration | 2 4.3% | 8 4.9% | 20 6.2% | 17 3.5% | 47 4.7% |
| Content that is not relevant to you | 13 28.3% | 47 29.0% | 101 31.5% | 166 34.5% | 327 32.4% |
| The same message containing the same content from multiple sources | 2 4.3% | 15 9.3% | 15 4.7% | 67 13.9% | 99 9.8% |
| All of the above | 0 .0% | 0 .0% | 3 .9% | 4 .8% | 7 .7% |
| Not applicable | 4 8.7% | 21 13.0% | 63 19.6% | 82 17.0% | 170 16.8% |
| Total | 46 100.0% | 162 100.0% | 321 100.0% | 481 100.0% | 1010 100.0% |

Tables 4.17 to 4.19 below illustrate the responses to questions about attendance at email related training. Questions focused on whether users had attended training in the past twelve months, the nature of the training, whether it was relevant and if not, why not. The information on why training was not relevant was gathered using an open ended question and were coded using emerging themes. The main themes were that the training was not relevant to the role undertaken, it was not required or it failed to achieve the stated aims.

Table 4.17. Attendance at email training within the past twelve months by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|---|---|--|---|----------------|
| Yes | 4 8.9% | 12 7.4% | 51 15.9% | 65 13.6% | 132 13.1% |
| No | 41 91.1% | 150 92.6% | 269 84.1% | 414 86.4% | 874 86.9% |
| Total | 45 100.0% | 162 100.0% | 320 100.0% | 479 100.0% | 1006 100.0% |

Table 4.18. Was the training appropriate for the role?

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------|---|---|--|---|---------------|
| Yes | 3 42.9% | 12 34.3% | 55 54.5% | 63 48.8% | 133 48.9% |
| No | 4 57.1% | 23 65.7% | 46 45.5% | 66 51.2% | 139 51.1% |
| Total | 7 100.0% | 35 100.0% | 101 100.0% | 129 100.0% | 272 100.0% |

Table 4.19. The nature of the training undertaken by employment role.

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|-------------------------------------|--|--|--|---|---------------|
| Software or hardware training | 3 100.0% | 6 60.0% | 35 79.5% | 36 76.6% | 80 76.9% |
| Content management training | 0 .0% | 2 20.0% | 3 6.8% | 3 6.4% | 8 7.7% |
| Accredited course | 0 .0% | 2 20.0% | 2 4.5% | 3 6.4% | 7 6.7% |
| Other training | 0 .0% | 0 .0% | 4 9.1% | 5 10.6% | 9 8.7% |
| Total | 3 100.0% | 10 100.0% | 44 100.0% | 47 100.0% | 104 100.0% |

Tables 4.20 and 4.21 derive from feedback received during the interview phase.

Each participant was asked to consider which roles they sent email to and received it from. Percentages are representative of the feedback received.

Table 4.20. Sent message proportions between roles

| | Sent | Senior Management | Middle Management | Business Support | Academics |
|--------------------|----------------------|----------------------|----------------------|---------------------|-----------|
| Role sending email | Senior Management | 35% | 35% | 25% | 5% |
| | Middle Management | 42% | 16% | 16% | 26%* |
| | Business Support | 6% | 23% | 34% | 38% |
| | Academics | 4% | 33% | 19% | 48% |

Table 4.21. Received message proportions between roles

| | Received | Senior Management | Middle Management | Business Support | Academics |
|----------------------|-------------------|-------------------|-------------------|------------------|-----------|
| Role receiving email | Senior Management | 35% | 35% | 24% | 6% |
| | Middle Management | 40% | 15% | 23% | 23%* |
| | Business Support | 8% | 25% | 24% | 30% |
| | Academics | 7% | 33% | 17% | 43% |

Table 4.22 illustrates a relationship between overload and the likelihood of perceiving an increase in email use. The results demonstrate that the more overloaded a role is, according to the relationship between actual use and perceived manageable maximums, the more likely they are to perceive that loads have increased.

Table 4.22. Relative differences in sent and received loads versus perceived manageable maximums

| | Mean Sent | Mean Manageable | Diff. | Rank | % increase | Rank |
|------------------|-----------|-----------------|-------|------|------------|------|
| Senior Managers | 33.79 | 34.74 | -0.95 | 2 | 88.96% | 2 |
| Middle Managers | 29.52 | 25.29 | +4.23 | 1 | 93% | 1 |
| Business Support | 19.25 | 23.25 | -4 | 4 | 79.7% | 4 |
| Academic | 12.70 | 14.19 | -1.49 | 3 | 83.5% | 3 |

| | Mean Received | Mean Manageable | Diff. | Rank | % increase | Rank |
|------------------|---------------|-----------------|--------|------|------------|------|
| Senior Managers | 51.57 | 37.00 | +14.57 | 1 | 93.0% | 1 |
| Middle Managers | 39.20 | 27.70 | +11.5 | 2 | 91.8% | 2 |
| Business Support | 24.74 | 23.65 | +1.09 | 4 | 84.1% | 4 |
| Academic | 20.17 | 15.61 | +4.56 | 3 | 87.6% | 3 |

Table 4.23 further demonstrates a link between overload and desire to change. As the gap grows between actual use and perceived manageable maximums, the results suggest that users are more likely to wish to change their email use.

Table 4.23. Overload and the desire to change

| | Cumulative Difference (actual vs. manageable) | Rank | Desire to change (yes) | Rank |
|------------------|---|------|------------------------|------|
| Senior Mangers | 13.62 | 2 | 53.3 | 2 |
| Middle Managers | 15.73 | 1 | 53.4 | 1 |
| Business Support | -2.91 | 4 | 22.0 | 4 |
| Academic | 3.07 | 3 | 38.6 | 3 |

Table 4.24 and 4.25 show the drawbacks and benefits of email displayed by role. The data was gathered by way of open ended questions and coded by emerging themes rather than predetermined criteria. It can be seen that the roles appear to have different perspectives on drawbacks and benefits.

Table 4.24. The drawbacks to email use by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|--|---|---|--|---|----------------|
| Excessive load | 3 6.5% | 17 10.5% | 18 5.6% | 44 9.1% | 82 8.1% |
| Time wastage | 1 2.2% | 14 8.6% | 17 5.3% | 45 9.4% | 77 7.6% |
| Blanket approach Inc. irrelevancies + junk | 1 2.2% | 8 4.9% | 6 1.9% | 43 8.9% | 58 5.7% |
| Lack of human interactions Inc. impersonal | 16 34.8% | 39 24.1% | 93 29.0% | 104 21.6% | 252 25.0% |
| Inappropriate use Inc. irrelevant content, copying and duplication | 0 .0% | 1 .6% | 4 1.2% | 5 1.0% | 10 1.0% |
| Failure to respond Inc. not reading and not actioned | 3 6.5% | 6 3.7% | 17 5.3% | 34 7.1% | 60 5.9% |
| Reliant on systems Inc. computer literacy | 0 .0% | 3 1.9% | 28 8.7% | 37 7.7% | 68 6.7% |
| Potential for misinterpretation Inc. language barriers | 0 .0% | 10 6.2% | 29 9.0% | 29 6.0% | 68 6.7% |
| Permanence Inc. confidentiality | 2 4.3% | 2 1.2% | 7 2.2% | 6 1.2% | 17 1.7% |
| Damaging Messages Inc. misunderstandings and sending to wrong people | 12 26.1% | 42 25.9% | 62 19.3% | 67 13.9% | 183 18.1% |
| Lack of consideration Inc. audit trail and expectations | 6 13.0% | 10 6.2% | 10 3.1% | 20 4.2% | 46 4.6% |
| Personal management skills Inc. work life balance | 1 2.2% | 4 2.5% | 10 3.1% | 18 3.7% | 33 3.3% |
| none | 1 2.2% | 6 3.7% | 20 6.2% | 29 6.0% | 56 5.5% |
| Total | 46 100.0% | 162 100.0% | 321 100.0% | 481 100.0% | 1010 100.0% |

Table 4.24 shows that a lack of human interaction is a cause for concern for all roles as is the potential for damaging messages and potential for misunderstandings. Excessive load also shows response rates higher than other response categories by the rates are low.

Table 4.25 shows that speed, reliability and ease, the main email benefits as identified by Denning (1982) are still considered to be the greatest benefits as identified by all roles. Some roles value the recorded nature quite strongly.

Table 4.25 .The benefits of email use by employment role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|---|--|--|---|---|----------------|
| Speed, reliability, ease, wide scope and distance | 35 76.1% | 98 60.5% | 200 62.3% | 330 68.6% | 663 65.6% |
| Record of messages | 2 4.3% | 35 21.6% | 58 18.1% | 64 13.3% | 159 15.7% |
| Cost effective | 1 2.2% | 1 .6% | 13 4.0% | 5 1.0% | 20 2.0% |
| Asynchronous Inc. personal time management and access | 3 6.5% | 16 9.9% | 20 6.2% | 38 7.9% | 77 7.6% |
| Document attachment | 1 2.2% | 2 1.2% | 7 2.2% | 13 2.7% | 23 2.3% |
| Immediate response | 3 6.5% | 4 2.5% | 7 2.2% | 10 2.1% | 24 2.4% |
| Filing system Inc. recording and referencing | 0 .0% | 0 .0% | 3 .9% | 5 1.0% | 8 .8% |
| Avoiding face-to-face and telephone | 0 .0% | 1 .6% | 4 1.2% | 4 .8% | 9 .9% |
| Privacy and security | 0 .0% | 0 .0% | 2 .6% | 1 .2% | 3 .3% |
| Other | 0 .0% | 1 .6% | 1 .3% | 3 .6% | 5 .5% |
| None | 1 2.2% | 4 2.5% | 6 1.9% | 8 1.7% | 19 1.9% |
| Total | 46 100.0% | 162 100.0% | 321 100.0% | 481 100.0% | 1010 100.0% |

4.4 Results relating to working relationships

This chapter presents the results gathered relating to the constituents of good working relationships. The results from the survey are included whilst the feedback from the interview phase is included within the analysis and discussion to add further depth to the findings.

Tables 4.26 and 4.27 below show the coded responses from the 1010 survey respondents. Table 4.27 represents the proportion of answers with those who

provided no answer filtered from the results. It can be seen that the two greatest constituents of a good working relationship identified are good communication and mutual respect. The results presented in these two tables were gathered using an open ended question. The coding used to group the responses emerged during the coding exercise rather than being comprised of predetermined criteria.

Table 4.26. Components of good working relationships (including no answer)

| | Frequency | Percent |
|--|-----------|---------|
| Effective, appropriate and honest communication | 419 | 41.5 |
| trust, dependability and transparency | 66 | 6.5 |
| Friendly, effective personal relationships and consideration of others | 50 | 5.0 |
| Approachable and professional | 16 | 1.6 |
| Mutual respect, support, equality and tolerance | 234 | 23.2 |
| Reliability | 4 | .4 |
| Teamwork and co-operation | 43 | 4.3 |
| No / unsuitable answer | 178 | 17.6 |
| Total | 1010 | 100.0 |

Table 4.27. Components of good working relationships (excluding no answer)

| | Frequency | Percent |
|--|-----------|---------|
| Effective, appropriate and honest communication | 419 | 50.4 |
| trust, dependability and transparency | 66 | 7.9 |
| Friendly, effective personal relationships and consideration of others | 50 | 6.0 |
| Approachable and professional | 16 | 1.9 |
| Mutual respect, support, equality and tolerance | 234 | 28.1 |
| Reliability | 4 | .5 |
| Teamwork and co-operation | 43 | 5.2 |
| Total | 832 | 100.0 |

Table 4.28 shows how role influences the perception of the constituents of good working relationships. It can be seen that Senior Management perceptions differ from the other roles. Further analysis of the differences will be undertaken within the analysis and discussion chapters.

Table 4.28. Components of good working relationships, exclusive of no answer, by role

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|--|---|---|--|---|---------------|
| Effective, appropriate and honest communication | 16 38.1% | 72 54.5% | 127 50.2% | 204 50.4% | 419 50.4% |
| trust, dependability and transparency | 6 14.3% | 12 9.1% | 12 4.7% | 36 8.9% | 66 7.9% |
| Friendly, effective personal relationships and consideration of others | 0 0.0% | 7 5.3% | 21 8.3% | 22 5.4% | 50 6.0% |
| Approachable and professional | 0 0.0% | 2 1.5% | 6 2.4% | 8 2.0% | 16 1.9% |
| Mutual respect, support, equality and tolerance | 18 42.9% | 31 23.5% | 74 29.2% | 111 27.4% | 234 28.1% |
| Reliability | 1 2.4% | 1 0.8% | 0 0.0% | 2 0.5% | 4 0.5% |
| Teamwork and co-operation | 1 2.4% | 7 5.3% | 13 5.1% | 22 5.4% | 43 5.2% |
| Total | 42 100.0% | 132 100.0% | 253 100.0% | 405 100.0% | 832 100.0% |

Table 4.29 shows that a large majority of users believe that they consider the needs of others when sending email. To supplement this the ways in which others are considered were gathered using an open ended question, the results of which were coded using emerging themes. It can clearly be seen that interpretation of the message and time management are the most common reasons cited (see table 4.30).

Table 4.29. Consideration of others when sending email

| | Frequency | Percent |
|----------------|-----------|---------|
| Yes | 858 | 85.0 |
| No | 149 | 14.8 |
| Total | 1007 | 99.7 |
| Missing System | 3 | .3 |
| Total | 1010 | 100.0 |

Table 4.30. Consideration of others when using email (excluding no answer)

| | Frequency | Percent |
|---|-----------|---------|
| Time management (self and others, is it needed, managed expectations) | 158 | 23.9 |
| Part of the job (needs to be done, told to work this way) | 31 | 4.7 |
| See no issues | 22 | 3.3 |
| Other methods may be more appropriate | 38 | 5.7 |
| Appearances and interpretation of the message, recordability | 361 | 54.5 |
| Positives of email | 11 | 1.7 |
| Other non-specific response | 41 | 6.2 |
| Total | 662 | 100.0 |

4.5 Results relating to changes in email use

This chapter will present the results gathered that demonstrate how email use has changed. The majority of the results that will be used in the discussion of this are presented in tables 4.5-4.10 presented in chapter 4.3. Additional results to be used in the analysis and discussion are presented below.

Table 4.31 illustrates how the issues of spam and irrelevant messages impact upon the perceptions of increases in email use. The results show that perceptions of increase are influenced by the issue of irrelevant messages. Tables 4.32 and 4.33 illustrate the overall perceptions of sent and received maximum manageable. Table 4.34 shows the average time spent using email. What can clearly be seen, when the results are related to table 4.37 is that sent message loads are slightly below the perceived maximums whilst received loads are above the maximums. Analysis and discussion will break the results down into the role influences to see if there is a difference between management and non-management roles.

Table 4.31. Impact of spam and irrelevant messages on desire to change.

| | Senior Management (Academic and Business Support) | Middle Management (Academic and Business Support) | Business Support (please identify your role) | Academic (please identify your main discipline) | Total |
|--------------------|---|---|--|--|---------------|
| Increased | 21 84.0% | 76 96.2% | 90 83.3% | 204 85.7% | 391 86.9% |
| Decreased | 1 4.0% | 0 0.0% | 5 4.6% | 8 3.4% | 14 3.1% |
| Stayed the same | 3 12.0% | 3 3.8% | 13 12.0% | 26 10.9% | 45 10.0% |
| Total | 25 100.0% | 79 100.0% | 108 100.0% | 238 100.0% | 450 100.0% |

Table 4.32. The perceived number of messages manageable to send in a day.

| N | Minimum | Maximum | Mean | Std. Deviation |
|-----|---------|---------|-------|----------------|
| 867 | 0 | 200 | 19.80 | 18.520 |
| 867 | | | | |

Table 4.33. The perceived number of messages manageable to receive in a day

| N | Minimum | Maximum | Mean | Std. Deviation |
|-----|---------|---------|-------|----------------|
| 879 | 1 | 200 | 21.19 | 19.602 |
| 879 | | | | |

Table 4.34. Average time spent daily using email

| N | Minimum | Maximum | Mean | Std. Deviation |
|------|---------|---------|-------|----------------|
| 1010 | 1 | 180 | 64.53 | 44.603 |
| 1010 | | | | |

Tables 4.35 and 4.36 relate to perceptions of waste when using email. Table 4.35 shows that 59.5% of respondents believe that they waste time. Table 4.36 shows that an average of 18.69% of time spent using email is wasted. In combination these results suggest that almost 60% of users waste almost 19% of their email use time on a daily basis.

Table 4.35. User perceptions of whether or not they waste time when using email

| | Frequency | Percent |
|----------------|-----------|---------|
| No | 406 | 40.2 |
| Yes | 597 | 59.1 |
| Total | 1003 | 99.3 |
| Missing System | 7 | .7 |
| Total | 1010 | 100.0 |

Table 4.36. Average percentage of time wasted when using email

| N | Minimum | Maximum | Mean | Std. Deviation |
|-----|---------|---------|-------|----------------|
| 643 | 0 | 100 | 18.69 | 15.352 |
| 643 | | | | |

Table 4.37 displays data derived from a number of studies that gathered any combination of sent messages, received messages or daily time spent. It appears that there is no discernible pattern relating to increases over time.

Table 4.37. A chronological representation of literature dealing with email usage

| Messages Sent (daily) | Messages Received (daily) | Time Spent (daily) | Source |
|------------------------------------|---------------------------|--------------------|------------------------------|
| 22%-0 – 5 53%-6 – 30 25%->21 | | | Markus (1994) |
| | 15 | 50 | Frazer (1996) |
| 84%-<10 | 81%-<10 | 77%-<30 | Sillince <i>et al</i> (1998) |
| | 49 | | Whitaker and Sidner (1996) |
| | 39 | | Pitney Bowes (2000) |
| 25%-30+ 40%-11-30 | 55%->20 | | Flood (2001) |
| | | 49 | Lyons (2002) |
| 17 | 25 | 69 ¹ | Ingham (2003) |
| | | 95 | Davenport (2005) |
| | 38 | | Bellotti <i>et al</i> (2005) |
| | 87 | | Fisher <i>et al</i> (2006) |
| 21 | 41 | | Dabbish and Kraut (2006) |
| 9 | 17 | | Szóstek (2011) |
| | | 95 | Huang <i>et al</i> (2011) |
| 18 ¹ | 26 ¹ | 65 ¹ | Current Study |

4.6 Results relating to future changes in email use

Results for this theme were gathered using three open ended questions. The first is represented in table 4.38 below. The results were grouped into those that felt email use would continue to grow and those who did not and the codes 'yes' and 'no' applied. As the open ended question allowed for a more detailed response two further codes were applied to those where the answer was qualified. As can be

seen in table 4.38 a total of 88.6% of all respondents felt that email use would continue to grow (this proportion includes those who responded positively and those who responded positively with a qualified answer. 7.9% felt usage would not continue to grow and the remaining results represent those who were unsure or who failed to respond.

Table 4.38. Do you believe that email usage will continue to grow in the future?

| | Frequency | Percent |
|------------------------|-----------|---------|
| Yes | 647 | 64.1 |
| No | 32 | 3.2 |
| Yes with qualification | 247 | 24.5 |
| No with qualification | 47 | 4.7 |
| Unknown | 11 | 1.1 |
| No response | 26 | 2.6 |
| Total | 1010 | 100.0 |

Table 4.39 shows the reasons provided by those who qualified their answer. The results were generated by coding the additional qualification provided. From the results it is clear that there are two main reasons why users believe email use will continue to grow. 36.4% of those who provided a qualification believed that cultural shift would drive increased email use and 22.7% felt that technological shifts and developments would result in increased email use. Interestingly, 9.3% of the respondents reported that the increase in use would not necessarily be a good thing.

Table 4.39. Reasons provided by those who answered yes with qualification

| | Frequency | Percent |
|--|-----------|---------|
| N/A | 1 | .4 |
| Accountability | 9 | 3.6 |
| Exponential Increase, not necessarily a good thing | 23 | 9.3 |
| In conjunction with other technology / technological shift | 56 | 22.7 |
| Time demands | 24 | 9.7 |
| Effective / convenient | 33 | 13.4 |
| Message sent | 1 | .4 |
| Cultural shift | 90 | 36.4 |
| Saturation point | 10 | 4.0 |
| Total | 247 | 100.0 |

In addition to those who qualified their positive answers, some of those who reported that email use would not continue to grow also provided qualification. This is shown in table 4.40. A switch to others methods as well as a belief that a saturation point had been reached were the overriding beliefs reported.

Table 4.40. Reasons provided by those who answered no with qualification

| | Frequency | Percent |
|----------------------------|-----------|---------|
| Switch to other methods | 29 | 61.7 |
| Systems not yet integrated | 1 | 2.1 |
| Saturation / plateau | 17 | 36.2 |
| Total | 47 | 100.0 |

The second of the three questions asked users to consider how behaviour could be changed to enhance email use. The open ended question results were coded using emerging themes. The results have been filtered to remove those who failed to provide an appropriate answer which accounted for 24.6% of all respondents. The most commonly reported behavioural changes were consideration of others (22.2%), increasing effective use and using alternatives where possible (20.9%) and the use of behavioural training (18.8%).

Table 4.41. How user behaviour could be changed to increase efficiency

| | Frequency | Percent |
|--|-----------|---------|
| Consideration of others and the relevance of messages | 169 | 22.2 |
| Training | 143 | 18.8 |
| Better use of existing technology or consideration of others | 65 | 8.5 |
| Appropriate use - SPAM, personal message etc. | 63 | 8.3 |
| Time management - either reduce or set aside | 24 | 3.1 |
| Organisational culture and policy | 49 | 6.4 |
| Effective use including alternatives, construction and expectation of response | 159 | 20.9 |
| Accountability | 9 | 1.2 |
| Don't know | 81 | 10.6 |
| Total | 762 | 100.0 |

The final of the three questions asked users what barriers they felt that email systems themselves created which adversely affected email use. The most commonly reported barriers were issues such as access and migration of systems which accounted for 35.3% of the responses. Interestingly, the next three highest response categories did not represent systems barriers at all. A total of 15% felt that user issues and concerns were barriers, 9.7% viewed a lack of personal interaction and reliance on email as barrier and 10.6% felt that effective behavioural training was barrier.

Table 4.42. Barriers to effective usage (excluding non-responses)

| | Frequency | Percent |
|---|-----------|---------|
| Overly complex | 2 | .6 |
| Technical issues including access, address book and migration | 113 | 35.3 |
| Ease of abuse and security issues | 27 | 8.4 |
| Effectiveness of filters including failed delivery and filing | 20 | 6.3 |
| Storage and attachment size and handling | 30 | 9.4 |
| User issues including time concerns | 48 | 15.0 |
| Message restriction and control over content | 8 | 2.5 |
| lack of personal interaction and reliance compared with other media | 31 | 9.7 |
| lack of training including user competence | 34 | 10.6 |
| use of groups | 7 | 2.2 |
| Total | 320 | 100.0 |

4.7 Results relating to conceptual framework components

The final set of results related to the relative importance of the components proposed within the conceptual framework. Respondents were presented with ten questions each of which related to a specific component. For each, the respondents had to score firstly how important it was in their current practice and secondly how better considering each may enhance usage in the future. The results are shown in tables 4.43 and 4.44 below.

It is worth noting that the low standard deviations show that the majority of the results are clustered around the mean, increasing the validity of the results. Table 4.43 shows that the most important factor in current practice is whether or not a written record may be required. The least important factor appears to be the possibility that further questions may be asked. Table 4.44 suggests that considerations around written record persist when considering the enhancing of future use and the possibility of further questions continues to score the poorest. It is worth noting that in both cases, factors that related to relationship components tend to score poorly suggesting that relationship factors are not currently playing a significant role in email practice.

Table 4.43. Factors have on the decision to use email

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--|-----|---------|---------|-------|----------------|
| Relationship with the recipient | 922 | 1.0 | 10.0 | 6.014 | 2.7063 |
| Physical distance between you and the recipient | 937 | 1.0 | 10.0 | 7.434 | 2.7226 |
| Whether you are trying to communicate with a group or individual | 946 | 1.0 | 10.0 | 7.355 | 2.3962 |
| Time pressure that you may be under | 962 | 1.0 | 10.0 | 7.103 | 2.4201 |
| How comfortable the recipient is with the use of email to communicate | 896 | 1.0 | 10.0 | 6.201 | 2.8052 |
| The possibility that the recipient may ask you further questions requiring more email messages in the future | 878 | 1.0 | 10.0 | 5.657 | 2.6862 |
| Whether email will allow you to communicate your message in the most effective way | 945 | 1.0 | 10.0 | 7.522 | 2.3146 |
| Consideration of how the recipient has responded to email communication in the past | 912 | 1.0 | 10.0 | 6.621 | 2.5484 |
| Whether a written record will be required | 949 | 1.0 | 10.0 | 8.160 | 2.2962 |
| Whether the content of what you wish to communicate is suitable for email | 943 | 1.0 | 10.0 | 7.771 | 2.3881 |

Table 4.44. How component consideration may enhance future email use.

| | N | Minimum | Maximum | Mean | Std. Deviation |
|--|-----|---------|---------|-------|----------------|
| Relationship with the recipient | 881 | 1.0 | 10.0 | 6.917 | 2.5157 |
| Physical distance between you and the recipient | 902 | 1.0 | 10.0 | 7.803 | 2.5418 |
| Considering whether you are trying to communicate with a group or individual | 915 | 1.0 | 10.0 | 7.798 | 2.2062 |
| Considering any time pressure that you may be under | 915 | 1.0 | 10.0 | 7.389 | 2.3733 |
| Recognising the possibility that the recipient may ask you further questions requiring more email messages in the future | 862 | 1.0 | 10.0 | 6.502 | 2.4653 |
| Considering how comfortable the recipient is with the use of email to communicate | 874 | 1.0 | 10.0 | 6.647 | 2.5664 |
| Considering whether email will allow you to communicate your message in the most effective way | 909 | 1.0 | 10.0 | 7.618 | 2.2009 |
| Consideration of how the recipient has responded to email communication in the past | 886 | 1.0 | 10.0 | 6.833 | 2.3933 |
| Identifying whether a written record will be required | 923 | 1.0 | 10.0 | 8.141 | 2.2006 |
| Considering whether the content of what you wish to communicate is suitable for email | 908 | 1.0 | 10.0 | 7.609 | 2.3722 |

4.8 Results chapter conclusions

This chapter has presented the results gathered primarily from phase one of the research. Quantitative as well as coded qualitative information has been presented along the thematic lines used in the literature review. In support of the research questions each theme has been linked to the relevant questions. The majority of the information gathered from phase two will be integrated directly into the analysis and discussion as the results will be better presented that way. As most of the interview questions were asked either to confirm or to add depth to the survey questions it is clear that presenting them in isolation will add nothing to the value of the work. The real value of the interview feedback comes from the depth

of insight provided into the thought processes, opinions and feelings of users from different roles rather than specific, quantifiable results.

Chapter 5 Analysis and Discussion

5.1 Introduction

This chapter will present the discussion and conclusions relating to the themes identified in the results chapter. Table 5.1 shows how each of the thematic analysis and discussion sub-chapters relates to the research questions posed. Discussion around culture and overload occurs in more than one discussion chapter as they are cross cutting themes, therefore the content of these chapters will go towards answering the research questions as show in the conclusions chapter. Following on from the discussion the conclusions will clearly demonstrate how both the initial objectives and the research questions have been clearly met within the thematic results, analysis and discussion.

The first sub-chapter will analyse and discuss role, culture and relationships. It was clearly established in the literature review through exploration of MRT, organisational culture, role culture and working relationships that this may have an impact on email usage. It was asserted in the literature review that different cultures and cultural levels will exhibit different patterns when using email to include the perception of benefits and drawbacks to email which will be further discussed in this chapter. In addition to this, the nature of working relationships and the possible future changes in email usage will be analysed and discussed to answer questions posed in the literature review as well as addressing research questions.

Changes to email usage will be analysed and discussed. It has been established in the literature review that this has a direct implication on email overload which is a key justification for the existence of the suggested conceptual framework. In this sub-chapter sent messages, received messages and time spent will be analysed and discussed in the context of previous studies. In addition, the implications of perceptions of change and perceptions of maximum manageable sent and received messages will be analysed and evaluated.

The next sub-chapter will analyse and discuss the perceived future directions of email and justification for the conceptual framework itself. This is important as it considers the impact of changing cultures, behavioural adjustment and technological change all of which impact upon the proposed conceptual framework. Critically, the literature review has identified that this approach to email

research has not been undertaken previously and may yield a number of interesting findings which impact upon email practice.

The final subchapter will analyse, discuss and justify each component of the conceptual framework in light of the literature review findings and subsequent results from the primary data gathering exercises. In addition to justifying the components of the conceptual framework, the need for the conceptual framework will be justified in its entirety.

The findings from phase two of the research will be integrated into the analysis and discussion. As stated in chapter 4, there is little value in presenting the raw information from the interviews and what little quantifiable data has already been presented. The nature of the thematic analysis approach means that the strength of this information will come in adding depth to the discussion around the data gathered in phase one of the research. Bailey (1997) discussed that it may be misleading to try and represent qualitative feedback separately as a set of results as results and analysis sit hand in hand for this type of information.

Table 5.1. Mapping research questions to analysis and discussion chapters

| Research Question | Relevant Discussion Chapter |
|--|-----------------------------|
| 1. What impact does culture have on email use? | 5.2, 5.3, 5.4, 5.6 |
| 2. How do users view the constituents of working relationships? | 5.3 |
| 3. How has email use changed? | 5.4 |
| 4. Does email overload exist in the Welsh FE sector? | 5.2, 5.4, 5.5, 5.6 |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | 5.2, 5.4 |
| 6. How do users perceive email use will change in the future? | 5.5 |
| 7. What behavioural changes could be implemented to support change? | 5.5 |
| 8. How relevant is the conceptual framework proposed in the literature review? | 5.6 |

5.2 Analysis and discussion of the impact of culture

It was suggested in chapters 2.3 and 2.4 that culture and role culture may have an impact on the way that email is used. Culture appeared to be closely linked to culture and as such this consideration was built into the suggested conceptual framework in chapter 2.9. This analysis chapter will address research questions one, four and five looking at the impact of culture, the existence of overload and

the impact of perceived maximums. As these are cross cutting themes, additional discussion and evidence will be offered in later discussion chapters.

In order to answer the first research question as to what impact culture has on email use it was first necessary to break the responses down into roles and groups and to conduct analysis on these before considering the results in the context of the other analyses conducted. Analysis is conducted at the meso and micro-cultural levels. Meso-culture concerns the main roles identified within the sector. Micro-culture concerns identified groups within the roles to investigate the impact this has on email usage.

The roles used for the meso-cultural analysis are taken directly from the roles identified in the sector. During the literature review and design of the questionnaire it was identified that there were four key employment rolls within the sector, Senior Managers, Middle Managers, Academic and Business Support. These roles possess the criteria laid down by Handy (1976) to define them as specific roles within the organisations which contribute to the overall cultural structure.

Each of these roles is clearly identified by separate pay scales that are applied within the common contract framework in existence in Welsh FE as well as the different common contracts that are used for employment. In addition to these technical delineations, during self-reporting HR Departments from across the colleges identified these specific roles.

Within the questionnaire Academic and Business Support respondents were asked to specify their job within the role. The purpose of this is to allow individuals within the role to be grouped by the job they perform. The meso-cultural level is defined by the key roles identified. At the micro-cultural level, as pay scales and contracts are common, the analysis will be conducted by job.

For Business Support there were fourteen different job groups identified within the role. Several of these groups were only represented by fewer than ten respondents. As such, the analysis of these would not produce useful findings. To enable the analysis and to reduce the complexity the top four most represented groups were selected for analysis. These groups were Systems / IT Development, General Admin, Student Support / Learner Services and Assessor / Commercial Trainer. It is worth noting that the response rates in these groups were still low and there is some imbalance in terms of the numbers in each group.

For the Academic role there were forty different job groups identified. As with Business Support groups there was an issue of small response numbers in the different groups. In this case, to strengthen the analysis, it was decided to combine the job groups along the broad academic groupings used with the sector. This significantly increased and balanced the response numbers within the groups whilst enabling meaningful analysis to take place. The identified groups were Health Care Services and Independent Living Skills (HCSILS), Humanities, IT and Essential Skills (ITES), and Science Engineering and Construction (SEC). The unspecified Academic group was also included to investigate the impact it had on the overall analysis.

The analysis of the three tiers of respondents will be considered in three different sub-chapters. Each will follow the same structure to enable direct comparisons between the impact at the meso and micro-cultural level. In addition, the identical approach will enable the larger Academic response groups to support the findings of the smaller Business Support groups. All analyses are conducted cross sector to enable generalisability, therefore, in this chapter there is no analysis by college. At each level of analysis the roles and jobs are considered sector wide. The first analysis will consider the implications of role on email usage, termed the meso-culture. The sector as a whole is considered to be the macro-culture. As the roles are sector wide by virtue of the common contract, this will constitute the meso-culture. A range of statistical tests will be applied to assess the similarities and differences in behaviours based upon role.

The second analysis will look more closely at the business support role. The most represented jobs will be used to replicate the analysis carried out on the roles to assess whether there are micro-cultural differences in email usage essentially at a departmental level. Role culture itself does not suggest that there will be observable significant differences but culture theories suggest that common reference points, share practices and common language has an effect on culture and communication and therefore may have an impact here. For example, IT technicians may share different cultural markers to general administration staff and should, therefore, exhibit different email behaviours.

Finally, the third analysis will explore the academic role. The different jobs can be divided into established academic groupings that represent both logical divisions and those used in the division of management in Colleges. This will make

academics identifiable by jobs in the humanities or engineering for example. There will be the addition of a group made up of academic staff that chose not to identify their job. Analyses will be made both with and without this group in order to see whether they have an impact. Once again, the same statistical tests will be applied here to investigate whether the effect of culture persists at this level. Findings from the interview process will be included where they are relevant within the analyses. As the interviews were broken down by role the findings will be most relevant in the discussion of meso-culture and role influences. The results will not be useful when looking at micro-culture and job influences as there is not likely to be representation from each of the jobs identified due to the random selection of the participants. It is not possible to undertake the same analysis for management roles as firstly, no data was collected on the nature of different management jobs. Whilst investigation of the sector shows that middle management jobs can be split by academic and non-academic responsibilities, the same cannot be applied to senior management jobs. Secondly, the low numbers involved in would mean that jobs would poorly represented and conclusions would be difficult to support. Once complete, each chapter will be concluded and an overall conclusion will be produced to show whether role culture does have an effect on email usage and whether that difference persists at the job level in the micro-cultural analysis.

5.2.1 Meso-Cultural Role Influences

The first analysis concerns the influence of meso-cultural role. The main results from the survey have been presented in chapter 4.2 as cross tabulations with the identified roles. From this, the results will be discussed and differences will be statistically tested. Role profiles will be drawn up to highlight the key similarities and difference, where they exist, between the ways roles engage with email.

These results provide an insight into email profiles of the different employment roles. Considering the drawbacks and benefits it can be seen that, whilst the percentages are not high, middle management and academics are much more likely to identify excessive load as a drawback. This links to the usage and perceived manageability of sent and received messages. Senior and Middle Management are more likely to feel that loads have increased, a marker of email overload. Middle Managers send and received more than they feel is manageable, both significant contributors to overload. Differences are higher in received messages which lends weight to the assertions made by Ingham (2003) and Dabbish and Kraut (2006) that received message load is the key factor in

overload, as observed in the literature review. A similar pattern is observed for academics where actual load exceeds the perceived maximum. This pattern is similar to that observed by Hole (2008) where 50% of academics studied were extremely overloaded.

Senior management and Business Support view email as having the potential to create a lack of human contact, a concern discussed in chapter 2.6.3. Connolly (1996) suggested that at least 20% of all communication should be conducted face-to-face to avoid this. The analysis in the literature review discussed that enabling the development of relationships, potentially through the use of face-to-face communication can enhance communication effectiveness. Therefore, if there is a desire to increase human contact, to improve relationships then damage may have already been done.

Similar feedback was gathered in the interviews. Senior managers view this issue in the context of changing business practice and the increased need for faster communication. This reduces face-to-face contact damaging social interaction with their staff. The reliance on email is, in some cases, actually reducing the effectiveness of overall communication. There is also the recognition that without knowing a person it can be very difficult to write an email tailored to them in order to be effective. Interviews show that business support jobs require real contact to develop the relationships to undertake their roles effectively as the role is based upon providing a service to either staff or students. Whilst the lack of face-to-face contact is a drawback for both senior managers and business support there are differences in the perception of the impact. Senior managers view it from a strategic perspective, the effectiveness of their communication and the balance of business practice. Business support consider it from a more operational perspective, recognising that face-to-face contact enables them to perform their job more effectively.

Inappropriate use was uniformly viewed as a drawback. A number of different examples of inappropriate use were considered in this study. They were identified as causes of wastage with duplicated or irrelevant work related messages being the chief example. Senior managers and academics were most likely to express this. Robson and Tourish (2005) identified that senior managers were concerned about overload and wastage caused by poor communication; the findings of this study appear to bear these out.

In all interviews, participants were questioned about the issue of inappropriate use. Senior managers tend to view it as a concern as the email may be inappropriate as it was not the most appropriate way of sharing the information or that the information is not entirely suitable for all recipients. One senior manager quoted the example of sending out price information for a hair salon on one campus to staff on other campuses. Senior managers are also in a position where they will have to deal with the consequences of inappropriate use especially in terms of poorly written emails or even ones that may have caused offence.

Middle manager interviews identified that they are concerned with the time waste element associated with emails that are not appropriate or not correctly directed particularly how this places undue pressure on them. There is concern that even when messages are not applicable to an individual they still take time to open, read and delete. Business support interviews demonstrate a concern over receiving information that is simply not relevant to them. There is concern that emails may be taken out of context or that as a result of perceived familiarity someone may inadvertently include things in an email that are not appropriate. Academic interviews demonstrate that having their time wasted especially by receiving messages from multiple sources or receiving messages that are not relevant as the significant drawback associated with inappropriate use.

The interviews demonstrate that whilst inappropriate use is a common drawback for all roles there are subtle differences in the interpretation of this between the roles. Senior managers are concerned over the overall impact of inappropriate use whilst middle managers are mostly concerned with time waste and the undue pressure it places on them. Support staff are concerned about how emails are perceived and that others may view practice as inappropriate and academics see duplicated messages and time wastage as the main inappropriate uses. There are some similarities between the inappropriate use identified by academics and middle managers which links in with the time waste issues identified above.

All staff identify that speed, reliability and ease are essential benefits of email communication, especially senior managers. Connolly (1996) suggested that senior managers, in a position to influence strategy, will tend towards the use of email for these and other reasons. Sillince *et al* (1998) showed that managing directors, owners and chairpersons had the greatest influence in the adoption and proliferation of email within their organisations. The reasons given for championing

the adoption were the speed and cost benefits (Sillince *et al* 1998). Similar findings were shown by Pliskin *et al* (1993) where uncontrolled expansion of system was seen as a threat to management political power but that controlled implementation on their terms was a means to leverage the potential without risking this.

The implication of this is that senior management, due to their strategic role, have driven the expansion of email based upon beliefs of the cost effectiveness of the medium. However, senior managers now appear to be bearing the brunt of overload issues as a result. The interviews suggest that it is the scope of email reach which is most important within speed, reliability and ease. Senior managers identify that they can send a common message to everyone at the same time, perceiving that this makes their communication more effective, time saving for themselves and cost effective. All of the consideration of this benefit by senior managers focuses solely on how it benefits them rather than others.

Significant minorities of users other than senior managers view the permanence of email as a benefit. Messages are recorded and can be stored can be used to protect individuals in cases of bullying or other inappropriate use such as in Collins (1986) and Seshadri and Cartenson (2007). Despite the condition that emails are recorded and can be used by management where necessary to monitor the activities of individuals being present in a number of email policies, senior managers do not view the record of messages as being a benefit. It may be that business undertaken at this level is politically sensitive which demands a less permanent method of communication (Kurtsburg *et al* 2006).

Significant differences can be observed when looking at sent and received message loads, Chi square tests demonstrate that there is a relationship between employment role and sent message load ($\chi^2 = 235.516$, $p=0.000$) and received message load ($\chi^2=237.404$, $p=0.000$).

Senior and Middle Management tend to send significantly fewer messages in the lower categories. This is indicative of a changing trend in management email usage, for examples, 56.7% of all management roles in this study sent fewer than 30 emails daily compared to 75% observed by Markus (1994). Similarly, looking at the higher sent load categories, 43.2% of managers sent more than 30 messages daily compared to 25% as observed by Flood (2001).

Senior and middle management send more messages overall and there are greater proportions of respondents in the middle and higher categories. This suggests that it is management who generate the load experienced in email systems. Possible reasons for the differences include the ability for email to improve communication by allowing managers to rapidly communicate with staff (Tassabehji and Vakola 2005), enabling relationships in areas of ever growing responsibility to be improved (Cunha and Cunha 2006). Email enables managers to keep workers informed as necessary (Kitchen 1997), this is achieved by making use of the ability to send a single message to multiple recipients (Stevens and McElhill 2000). Interview feedback does show that senior managers view being able to rapidly communicate with large numbers of staff as a benefit. Sending widespread, general emails appears to be a practice common to senior managers as identified in the interviews.

When considering received messages there are differences between management and non-management staff. Academic and business support receive fewer emails and the number of respondents is concentrated in the lower response categories. Senior and Middle Management have fewer responses in the lower categories and the drop off is once again less rapid with higher proportions of management staff receiving higher numbers of messages.

Information from interview participants gives insights into how load is generated between employment roles. Interview participants were asked to identify the proportion of their messages sent and received and to break this down by role. The results of this have been included to aid analysis and discussion and can be seen in tables 5.2 and 5.3. In each case the proportions have been averaged across the interview participants from each role. Whilst the sample size to calculate these percentages is not large they do provide a useful insight into the patterns of sent and received message behaviour between roles. Tables should be read along the x axis.

Table 5.2. Sent message proportions between roles

| | Sent | Senior Management | Middle Management | Business Support | Academics |
|--------------------|-------------------|-------------------|-------------------|------------------|-----------|
| Role sending email | Senior Management | 35% | 35% | 25% | 5% |
| | Middle Management | 42% | 16% | 16% | 26%* |
| | Business Support | 6% | 23% | 34% | 38% |
| | Academics | 4% | 33% | 19% | 48% |

Table 5.3. Received message proportions between roles

| | Received | Senior Management | Middle Management | Business Support | Academics |
|----------------------|-------------------|-------------------|-------------------|------------------|-----------|
| Role receiving email | Senior Management | 35% | 35% | 24% | 6% |
| | Middle Management | 40% | 15% | 23% | 23%* |
| | Business Support | 8% | 25% | 24% | 30% |
| | Academics | 7% | 33% | 17% | 43% |

*-these figures are influenced by a mix of academic and non-academic managers. For academic managers this figure was significantly higher, up to 60%.

It appears that senior and middle managers are generating the load for one another with senior managers sending a large proportion of emails to middle managers and other senior managers. Middle managers are sending a large proportion of messages to senior managers. Senior managers receive the greatest proportion of their email traffic from other senior and middle managers whilst middle managers receiving their greatest email load from senior managers. Business support send their greatest proportion of email to other business support staff and academics. The greatest proportions of received messages come from the same sources with additional load coming from middle managers. Academics send and receive their greatest loads from middle managers and other academics. Of the four roles the academic role is the only one where the largest proportion of email communication, both sent and received, is conducted within the same role.

Received messages are the strongest indicator of email overload (Ingham 2003 and Dabbish and Kraut 2006). In itself, a higher number of received messages is not necessarily enough to suggest overload. Sent and received messages taken in conjunction with the perceived maximum number of messages manageable to send and receive, as well as perceptions of change, can provide context against which to consider overload (see table 4.7).

In terms of sent messages, Senior managers, Business Support and Academics report sending, on average, fewer than the average number of messages perceived to be manageable to send. Middle managers believe that they send more than the manageable number of messages, contributing to overload. ANOVA tests show that Academics' perceptions of sent message manageability differ significantly from all other staff ($p=0.000$ in all cases). Middle Management and

Business Support do not differ significantly ($p=0.681$). Middle Managers and Senior Managers do differ but not as strongly as Academics and others ($p=0.012$). Business Support and Senior Management perceptions differ strongly ($p=0.001$).

All roles receive more than the average manageable messages. This is important as it suggests overload. The extent to which the figures are above manageable averages is different with senior managers receiving in the region of 14 more messages per day than they perceive to be manageable, reducing to only one message more than is manageable for Business Support. ANOVA tests show that Academics' perceptions of received message manageability differs significantly from all other employment roles ($p=0.000$ in all cases). Middle Management and Business Support do not differ significantly ($p=0.149$). Middle Managers and Senior Managers do differ but not strongly ($p=0.022$). Business Support and Senior Managers perceptions differ significantly ($p=0.000$).

These findings suggest that email overload is affected by the culture within each generic role. However there are similarities between groups, notably between Business Support and Middle Management. Senior managers have driven the expansion of email services through their cultural receptiveness to the benefits it brings. As a result of this they have placed themselves in a situation where they are significantly overloaded and created overload for all other roles who have lower perceptions of manageability. During the interviews participants were asked whether they felt that their email load was manageable. Senior managers tended to feel that it was but only by virtue of having a mobile device to manage their email wherever they were. When questioned whether removal of the device or enforcing email use only during working time would negatively affect their ability to manage email the responses indicated that it would. This pattern was also observed with other roles. A number of interview participants accessed email outside of contracted work hours. As a result, whilst email load may initially seem manageable, it is only so if time is taken to address emails outside of normal work time. There is also a concern that is creating unrealistic expectations on other people, whilst senior managers recognise that they may cause this it does not appear to influence their use of email outside of work time.

Perceptions of change help to bolster the findings of sent and received messages. All roles felt that sent load has increased in recent years, however, middle managers feel this more strongly than other roles. Whilst there are some

differences in the percentages, Chi square tests illustrate that the perception of increased sent load is not dependant on employment role ($\chi=15.149$ $p=0.19$).

The descriptive observations tie in with middle managers being the only category of staff to send more messages than they feel are manageable. All staff also believed that received messages had increased in recent years. In this case, senior managers believed this most, tying in with receiving the highest number of messages over the perceived maximum to receive. Chi square also reveals that despite descriptive observations, role does not influence the perception that received load has increased ($\chi=10.043$ $p=0.123$).

These questions were supplemented in the interviews where participants were asked if their email usage had changed over the past two years. Ten of the fifteen participants, across all roles, felt that it had increased. The participants from the academic role felt that their load had remained static. One middle manager had changed jobs from academic management to a management job with no direct line management responsibilities which had reduced load. Finally, a senior manager felt that load had reduced since changing roles from academic middle management.

Roles are ranked by both sent and received messages in relation to perceived maximum and these are then placed alongside rankings for perception of change the same pattern of rankings can be observed. As shown in table 5.4, included to enhance analysis and discussion, in terms of sent messages, middle managers are over their perceived maximum and have the greatest proportion of respondents believing that volume had increased. Business Support sent loads are further below the perceived maximum than the others, matching with the lowest perception of increase. Identical patterns can be seen when looking at received messages.

Table 5.4. Relationship between role and sent and received messages.

| | Mean Sent | Mean Manageable | Diff. | Rank | % increase | Rank |
|------------------|-----------|-----------------|-------|------|------------|------|
| Senior Managers | 33.79 | 34.74 | -0.95 | 2 | 88.96% | 2 |
| Middle Managers | 29.52 | 25.29 | +4.23 | 1 | 93% | 1 |
| Business Support | 19.25 | 23.25 | -4 | 4 | 79.7% | 4 |
| Academic | 12.70 | 14.19 | -1.49 | 3 | 83.5% | 3 |

| | Mean Received | Mean Manageable | Diff. | Rank | % increase | Rank |
|------------------|---------------|-----------------|--------|------|------------|------|
| Senior Managers | 51.57 | 37.00 | +14.57 | 1 | 93.0% | 1 |
| Middle Managers | 39.20 | 27.70 | +11.5 | 2 | 91.8% | 2 |
| Business Support | 24.74 | 23.65 | +1.09 | 4 | 84.1% | 4 |
| Academic | 20.17 | 15.61 | +4.56 | 3 | 87.6% | 3 |

There is a clear relationship between the perceived maximum manageable for sent and received messages. For the whole sample group $r=0.736$ $n=848$ $p=0.000$. For Senior Managers $r=0.941$ $n=41$ $p=0.000$. For Middle Managers $r=0.798$ $n=139$ $p=0.000$. For Business Support $r=0.799$ $n=264$ $p=0.000$. For Academics $r=0.461$ $n=404$ $p=0.000$. This illustrates that all users feel that sent and received loads should balance. Senior managers believe this most strongly and academics believe this to a lesser degree.

The average time spent daily when using email differed between roles ($p=0.000$). ANOVA tests reveal significant differences between Senior Managers and Business Support ($P=0.000$) and significant differences between Senior Managers and Academics ($p=0.000$). There are no significant differences between senior managers and Middle Managers ($p=0.997$). Business Support and Academics differed significantly from the other roles ($p=0.000$). There appears to be a clear division between managers and non-managers in this case.

The time spent using email does not necessarily relate to the sent and received messages observed. This can be illustrated by the average time taken per message by each role. Senior Managers spent 1.15 minutes per message, Middle Managers spent 1.46 minutes per message, Business Support spent 1.55 minutes per message and Academics spent 1.43 minutes per message. This patterns may be due to an expectation that senior managers should be more focused and directed and should have superior information handling skills thus reducing the time to process email.

It is not entirely clear why there should be a difference in the time spent per message. Kitchen (1997) suggested that managers use email to keep workers informed. If this is the case then messages may not be complex and therefore will not take much time to deal with. In addition, the results show that where users receive high levels of work related messages that are not relevant or are

duplicated; they tend to spend less time per message. Possibly, where messages are considered to be wasteful, they can be disposed of quickly.

The differences in time spent suggest other important factors for email users to consider. If Senior Managers spend less time per message then it is important to keep messages short and to the point in order to help ensure that communication is effective. Middle Managers spend more time per message possibly reflecting the more complex, operational role and the messages that they receive. Business Support tend to spend the most time per message which may reflect the complex instructions that they are dealing with within their role. A further issue here may be concern showed that messages may be misinterpreted, this could further increase the time taken to generate messages. Business Support also has the closest averages of sent and received messages suggesting greater care being taken over instructions being passed.

The desire to change email usage also differs. Senior and middle managers are most likely to want to change their usage with Business Support least likely. Academics are more likely than Business Support to want to change but less likely than Senior or Middle Managers. The pattern matches that which is observed when looking at the difference between manageability versus actual messages, as well as perceptions of increase. The results relating to this have been reproduced in table 5.5 to highlight the point.

Table 5.5. Overload and the desire to change

| | Cumulative Difference (actual vs. manageable) | Rank | Desire to change (yes) | Rank |
|------------------|---|------|------------------------|------|
| Senior Mangers | 13.62 | 2 | 53.3 | 2 |
| Middle Managers | 15.73 | 1 | 53.4 | 1 |
| Business Support | -2.91 | 4 | 22.0 | 4 |
| Academic | 3.07 | 3 | 38.6 | 3 |

This suggests that differences between actual messages sent and received, and perceived maximum manageable affects the desire to change. The more that actual usage exceed perceived maximums, the higher the percentage of users who wish to change. Roles who wish to change their email usage will have perceived maximums that are lower than their average usage.

Questions were asked in interviews on the desire to change email use and similar pattern emerged as observed in the survey responses. Senior managers and middle managers tended to feel that they did wish to change their email usage.

None of the business support participants felt that they wished to change their use whilst two of the three academic participants did not wish to change their usage.

Volume and content management was cited as the biggest reason for wishing to change email usage. This further suggests that actual versus perceived maximum load is related to the desire to change usage as well as the perception that usage has increased. The same pattern is also observed when looking at desire to reduce unsolicited communications. It appears that these also have a negative impact on email usage, increasing the desire to change. The receipt of unsolicited messages may also impact on incoming message loads.

In addition to finding out why participants wished to change, consideration was made of reasons why they may not wish to change. For those who did wish to change, senior managers felt they wanted to regain face-to-face contact, a drawback identified by this role, and simply receive lower loads in order to effectively do their jobs, similar responses came from middle management participants.

None of the business support participants wished to change their usage, feeling they were happy with the system as it is and that usage was a necessity for their job. This is interesting as a lack of face-to-face contact was identified strongly by this role so it could be expected that they would like to see a switch to face-to-face contact. Whilst academic participants did not directly wish to reduce their email load in two of the three cases there was identification that current loads could be more effectively managed through the use of mobile technology. Applying a filter to isolate the users who said that they wished to change their email usage showed an average sent message load of 21.2 per day against a perceived maximum of 17.37. An average received load of 32.9 per day messages against a perceived maximum of 19.1 was also observed, further suggesting that received message load has a significant impact on users' desire to change their email usage.

There is no difference in the proportions of each role who believe that they consider the needs of others before sending emails, the degree to which this is true is equivocal. In all cases the results are high suggesting that users understand the load that they are placing on others when they send messages. Denning (1982), Seeley and Hargreaves (2003), Ingham (2003) and Evans and Wright (2008) all discuss the issue of generating excessive load by not considering the needs of the recipient. It appears that this issue has been taken on board by

the users of email in this case. This question was also asked to interview participants. Only one interview participant, a senior manager, admitted that they failed, on a number of occasions to really take into account the needs of the recipient when sending emails. The remainder of the interview participants did. Further to the similarities in findings there are also very similar response rates for the reasons given. In all cases time management of self and others as well as appearances and interpretation of the message is the key reasons provided as to why others are considered.

These findings were borne out in the interview results. All roles were conscious of how their messages would be received and perceived. The tone of the responses suggested that this was more to do with not looking bad themselves rather than actively helping the recipient. The tone was different for business support recipients who seemed to be more actively concerned about whether email was suitable for their communication and that it should be understood for the sake of the recipient. Perceptions of wastage differ between roles. Middle and Senior Managers perceive that they waste the most time. This may be related to the fact that these two groups send and receive the most email as well as spending the most time using email. There is a break in the pattern when looking at Academics and Business Support. Whilst Business Support send and receive more messages, and spend more time using email than Academics, they are less likely to believe they waste time when using email. Academics have the lowest time spent and overall sent and received messages but 63.1% believe they waste time which is almost as high as Middle Management at 69.6%.

Interview participants were also asked about wasting time when using email. The responses provided an interesting insight into the perception of the question. Some respondents took it literally and felt that they did not personally waste time through their usage. These respondents were probed further and it was revealed that their time was wasted by others. Some respondents identified this without prompting and a number felt that time was wasted by both themselves and others. This helps to place the wastage statistics gathered into context. Similar patterns emerged from the interviews as were observed in the survey. All senior manager participants felt they wasted time and some felt that their time was additionally wasted by the actions of others. Whilst some participants did, academics and middle managers were again less likely to identify that their time was wasted.

Academics identified strongly with the idea that work related emails that are not relevant or are duplicated are significant causes of email wastage. This role also identified most strongly with the idea that personal management issues cause wastage. Furthermore, the drawbacks most commonly identified by Academics were time wastage, the blanket approach to sending messages and excessive load. These findings were also borne out in the interview discussions.

Lou *et al* (1997) suggested that whilst the use of email is generally accepted by all staff there are differences based upon job roles. In the case of staff in an academic institution, Senior and Middle Managers as well as Business Support are generally desk based roles; where there is greater time to deal with emails. In these cases there may be a lower perception of wastage. An Academic role causes the member of staff to be out of an office and therefore away from email for extended periods. What time there is for email usage may see the user less tolerant of messages that are not relevant and therefore more likely to believe that time is wasted. This may link to the reduced levels of Academic involvement in the study.

There does appear to be a relationship between the numbers of messages received, the desire to change email usage and the perception that time is wasted. If Academics are removed from consideration as the components of their role are significantly different to those of the other roles under consideration. Senior Management, Middle Management and Business Support have a number of similar components within their roles such as being primarily office based and therefore having greater time to manage their email. Similar observations can be made of the proportion of time wasted. Senior and Middle Management report the highest proportion but Academics believe that a greater proportion of their time is wasted than Business Support. This may be related to the reduced amount of time that Academics have to manage email in comparison to other roles. As a result of this, if an Academic's time is wasted when using email, most likely through irrelevant work related messages, duplicated communication or blanket approach, it is likely to account for a higher percentage of their email usage time. Again, this may further explain the lower than expected response rate from academics.

Interview participants observed that between 10% and 20% of time across all roles was wasted when using email. This is close to the reports made in the survey. However, not all questionnaire respondents reported on this. The reasons for

wastage were gathered through open ended questions which were coded. Examples gathered from literature were also employed to corroborate these findings. Senior and Middle Management were most likely to report receiving emails that contained either inappropriate or offensive content, having an aggressive tone or were bullying in nature. Lim and Teo (2009) suggested that managers tend to be the source of these uncivil behaviours rather than the recipients of them. Similarly Baruch (2004) reported that managers were a significant source of bullying but that peers were also sources.

Considering these findings it can be suggested that whilst senior managers are experiencing significant levels of uncivil email behaviour, some of the more serious issues may originate from their peers, in line with Baruch (2004). However, these findings need further testing.

Senior and Middle Managers were also most likely to report receiving messages that were sent to avoid face-to-face contact or were poorly written and hastily composed. Lack of human interaction was seen as a drawback by Senior and Middle Managers which fits with the perception of receiving messages to avoid face-to-face contact. This links with the idea that Senior Managers do not view the paper trail generated by email as a benefit. Similarly, damaging messages and the potential for misunderstandings were also cited as significant drawbacks. Academics most strongly identified that they had received messages that contained irrelevant content, fitting with cited reasons for wastage discussed previously. When asked to provide an example of the most important all users strongly identified irrelevant content as the biggest inappropriate use of email.

Interview responses build on these findings further by engaging the participants in how waste makes them feel. This response is important as it may influence response to overload. There is minimal in the way of distinction between the roles in terms of response to wastage. Participants reported that wastage left them feeling frustrated that their time could be more effectively spent on other things. This feeling is compounded by the perception that others don't care about the recipient in that they could have been more aware of wasting their time. As well as being directly reported, the feeling of frustration was evident in the nature and tone of the responses to questions about wastage. Those who felt time was wasted, especially by others, became animated during the discussion and allowed their frustration at this to become evident.

Despite these feelings there were respondents who were more sanguine in their response, they felt that it would be counterproductive to become negatively affected by the wastage and they just deal with it. Some respondents reported feeling resigned to the fact that time will be wasted and that loads will increase. If a respondent wastes time but does not let it bother them then will they take steps to reduce the wastage? This question cannot be answered by the data collection carried out here but may suggest a level of learned helplessness.

There are slightly different attitudes towards email training. Senior and Middle Managers were much less likely to have attended training in the past twelve months. However, for all roles the proportion of users attending training is very low. There is very little difference in the opinions of those who attended training about the value of the training. A number of staff felt that training was not appropriate and a high proportion of Academics felt it was not relevant for their role or did not achieve the stated aims. From the discussions undertaken it is possible to generate user profiles for the four roles discussed in this study. These profiles are shown in figure 5.6.

5.2.2 Conclusions on Meso-Cultural Role influences

Differences between how roles view and use email have been demonstrated.

There are significant differences between usage statistics that have been shown to be related to role. Senior Managers appear to send and receive the most email, most likely to feel that loads have increased and also exhibit other signs of email overload in the form of sending many more messages than they feel are manageable to send. Middle Managers are overloaded and tend to spend the greatest amount of time using email. However, in terms of sent messages middle managers do not differ significantly from Senior Management and Business Support. Academics differ, they have much lower sent and received message loads and also the lowest time spent using email which may simply be a product of non-office based role. However, they perceive wastage similarly to both Senior and Middle Managers who send and receive much greater loads. This appears to be related to the perception of manageability which shows that, whilst overall loads are low for this employment role they exceed what is perceived to be manageable which may account for the high desire to change.

The patterns observed can be explained by the role. Senior Managers, Middle Managers and Business Support tend to be office based and may therefore have

greater capacity to deal with email. Academics are not predominantly office based which may explain why they perceive waste as issues related to repeated messages or irrelevant content which would impact more greatly on the time they spend using email. The differences in email user profiles for the generic roles point to different structures, choices and potential effectiveness of the use of email in these roles. These can be identified as the cultural markers that influence communication within and beyond these groups resulting in differing perceptions about wastage, email load, manageability, computer literacy, system dependence and the nature of human interaction at the meso-cultural level.

Figure 5.6. Email user profiles based on role

| | |
|---|--|
| <p>Senior Managers</p> <p>Differences: Lack of human interaction viewed as a drawback Views speed reliability and ease as a benefit compared to middle managers Not interested in the record compared to all other roles Receives significantly more than other roles Time spent per message lower than other roles Only role where mean manageable sent messages is less than mean actual sent</p> <p>Similarities: Views speed reliability and ease as benefits along with business support and Academics Similar to middle managers in terms of sent load Perceptions of increase similar to all other roles Similar overall time spent as middle managers Similar to middle managers in terms of desire to change load Similar to academics in perception of time wasted Mean received exceeds mean manageable Similar to middle managers regarding reports of receiving inappropriate content and aggressive messages</p> | <p>Middle Managers</p> <p>Differences: Does not view lack of human interaction as a significant drawback Does not view speed reliability and ease as a significant benefit Receives fewer numbers of messages than senior managers Higher desire to change loads than non-management roles. Higher proportion of wasted time than other roles. Most likely to feel bullied via email</p> <p>Similarities: Similar view of wastage as academics Similar to senior managers in terms of sent message load Perceives increases in message load Shows concern over how messages may be interpreted Similar to senior managers in terms of reports of receiving inappropriate content and aggressive messages</p> |
| <p>Business Support</p> <p>Differences: Lowest levels of waste perceived Concerned about computer literacy and reliance on systems Loads well within perceived maximums Least likely to wish to change email usage Less likely to view irrelevant messages as a cause of waste compared to all other roles Less likely to perceive bullying, aggressive messages or avoidance of face-to-face contact as issues compared to other roles.</p> <p>Similarities: Views lack of human interaction as a drawback similarly to senior managers Similar to senior managers and academics in terms of views of speed, reliability and ease as benefits Perceives increases in load similarly to other roles.</p> | <p>Academics</p> <p>Differences: More concerned about time wastage and failure to respond than other roles. Sends and received the lowest levels of messages compared to other roles. Disproportionate views of waste compared to load and time spent compared to other roles. Lowest level of time spent compared to other roles.</p> <p>Similarities: Similar to senior managers and business support in terms of views on speed, reliability and ease Exhibits similar issues related to overload as management roles Similar to senior managers in terms of views on work related messages that are not relevant as being the primary cause for waste Similar levels of waste as senior managers</p> |

5.2.3 Micro-cultural influences – Business Support Employment Groups

Identical detailed analyses were carried out using groups within the Business Support role. A total of 175 responses were used for this analysis 21 of which were System and IT Development jobs, 91 were General Admin jobs, 37 were Student Support / Learner Services jobs and 26 were Assessor / Commercial Training jobs. The analysis revealed that in the same twelve statistical areas used when analysing roles, only two of the twelve yielded statistically significant results. One of these was a correlation between perceptions of manageability related to sent and received messages which was expected to be significant as it was at the role level and the other was a significant difference in received message loads.

It can be concluded that despite assertions in the literature review, there is little influence is exerted by culture at the micro-cultural level. The main drawback in this analysis is the low numbers used to conduct it and the uneven spread of results between groups. Whilst this could not have been helped it may reduce the validity of the findings. A full discussion of this analysis can be found in Silverstone (2015) found in appendix B.

5.2.4 Micro-Cultural Analysis – Academic Groups

Detailed analyses was also carried out using groups within the Academic role. This analysis was undertaken to confirm the findings from that conducted on the Business Support groups. A total of 480 responses were used of which 63 were from the HCSILS group, 87 were from the humanities group, 71 were from the ITES group, 71 were from the SEC group and 188 were from the unspecified academic group. Analyses were conducted using identical methods as those used previously and only two of the twelve statistical tests yielded significant differences. One of these was a correlation between perceptions of manageability related to sent and received messages which was expected to be significant as it was at the role level and the other showed significant differences in the perception of wastage.

Analyses were conducted with and without the unspecified academic group to ensure that it did not exert any undue influence on the results due to its size. A full discussion of this analysis can be found in Silverstone (2014c) located in appendix B.

5.2.5 Final Conclusions

Findings support the importance of role culture in the use of email in the Further Education sector in Wales and therefore provide answers to research question one showing that role culture influence email use but cultural levels below this appear to have little influence on email use. Culture has been explored as an important factor influencing relationships. These results suggest that the extent to which culture influences the use of email on a large scale is limited to the role in which a user works. It was initially assumed that difference would be observed at a departmental or at least common job group level, however this does not appear to be the case. This provides answers to research question one in that culture does have an impact on email use, to a point.

Across all three analyses the only common significant factor was the correlation between perceived maximum sent and received messages. This is to be expected as the findings correlated strongly for the whole data set as well as at the role level. It is highly unlikely that sub groups would demonstrate significantly different levels of significance. However, there is value in recording this result as it does show that users, in general, feel that sent and received loads should balance regardless of their job or role. A comparison of the results can be seen in table 5.7 which demonstrates where similar analyses were conducted and shows the results of each.

Existence of overload has been shown as a comparison between actual and perceived maximum manageable measures. Where actual load exceeds that which is perceived to be manageable there are other markers of overload such as a greater tendency to identify wasteful behaviours and a desire to change. Importantly, the extent of overload appears to be linked to role. This provides evidence to answer research questions four and five. An important factor identified within chapters 2.3 and 2.4 is that relationship will also affect and be affected by culture. There was suggestion that relationships may transcend roles but that it may be difficult for these relationships to form. Identifying what constitutes these relationships will enable a better understanding of the influence of culture and provide further answers to research question one as well as addressing research question two.

Table 5.7. Statistical significance results for meso and micro-cultural differences

| Test | Role culture analysis | Business Support Job analysis (Silverstone 2015) Appendix B | Academic Job Analysis (Silverstone 2014c) Appendix B |
|---|---|---|---|
| Sent message load (Chi Square two tailed, significance p=0.05) | X=235.516, p=0.000 | X=10.971, p=0.278 | With UA X=15.235, p=0.229 Without UA x=912, p=0.179 |
| Received message load (Chi Square two tailed, significance p=0.05) | X=237.404, p=0.000 | X=33.856, p=0.000 | With UA X=8.912, p=0.179 Without UA x=14.014, p=0.122 |
| Sent message manageability (one way ANOVA test, significance at p=0.05) | Whole study (p=0.000) A & all (p=0.000) MM & BS (p=0.681) MM & SM (p=0.012) BS & SM (p=0.001) | Whole study (P=0.185) range (p=0.220 to p=1.000) | With UA, whole study (p=0.474) Without UA, whole study (p=0.469) |
| Received message manageability (one way ANOVA test, significance at p=0.05) | A & all (p=0.000) MM & BS (p=0.149) MM & SM (p=0.022) BS and SM (p=0.000) | Whole study (p=0.91) range (p=0.104 to p=0.935) | With UA, whole study (p=0.384) Without UA, whole study (p=0.790) |
| Increase in sent load (Chi Square two tailed, significance p=0.05) | X=15.149, p=0.19 | X=11.123, p=0.082 | (x=10.305, p=0.244) |
| Increase in received load (Chi Square two tailed, significance p=0.05) | X=10.043, p=0.123 | X=4.967, p=0.548 | X=9.124, p=0.332) |
| Correlation for perceived maximum sent and received (bivariate Pearson's correlation, two tailed, significance at p=0.05) | R=0.736, n=848 P=0.000 | R=0.737, n=174, p=0.000 | With UA r=0.461, n=413, p=0.000 Without UA r=0.583, n=259, p=0.000 |
| Time spent using email (one way ANOVA test, significance at p=0.05) | Whole study (p=0.000) SM & BS (p=0.000) SM & A (p=0.000) SM & A (p=0.997) BS + A & all (p=0.000) | Whole study (p=0.248) range (p=0.227 to p=0.983) | With UA, whole study (p=0.097) Without UA, whole study (P=0.066) |
| Desire to change usage | X=55.141, p=0.000 | X=2.637, p=0.451 | X=4.431, p=0.351 |
| Consideration of others when sending email | X=3.926, p=0.270 | X=2.086, p=0.555 | X=8.876, p=0.070 |
| Perceptions of wastage | X=31.792, p=0.000 | X=0.891, p=0.828 | With UA x=16.410. p=0.003 Without UA x=16.289, p=0.001 |
| Amount of wasted time | Whole study p=0.016 range (p=0.008 to 0.981) | Whole study p=0.911 range (p=0.930 to p=1.000) | With UA p=0.422 Without UA p=0.319 |
| Number of items where significance is achieved | 9 | 2 | 2 |

5.3 Analysis and discussion of working relationships

Chapters 2.3 and 2.4 in the literature review suggested that culture was strongly influenced by the relationships that individuals have with one another. Chapter 2.5 attempted to quantify the meaning of good working relationships but was unable to provide specific definitions regarding the constituents of good working relationships. The value of relationship was included in the proposed conceptual framework in chapter 2.9 but there was a need to qualify it. The evidence

generated in the analysis and discussion within this chapter will answer research question two relating to how users view working relationships.

Respondents were asked to provide their opinion on what constitutes a good working relationship. The line of enquiry will enable research question two to be answered by addressing how users perceive the constituents of working relationships. It has been suggested that a good relationship is useful in improving communication, especially in situations where traditionally less rich methods of communication are concerned. Less rich methods are considered to be 'cueless' as suggested by Rutter and Stephenson (1979). A good relationship replaces cues with experience and the ability to pre-empt responses. As the individuals involved know one another the recipient is able to make assumptions about meaning that is not conveyed well in less rich methods of communication. In the literature review it was asserted that relationships and culture could be substituted for cues present in rich communication.

Analysis in the literature review resulted in the inclusion of this idea in a conceptual framework of effective email usage by generating the 'subjective distance' component. This component incorporates the ideas of Lee (1991, 1994) who considered that relationship exists as a measure of trust between individuals and Child (1981) and Barret and Bass (1976) who considered the use of shared symbology in culture and relationships. Where these conditions exist, a low level of subjective distance could be assumed based upon a better working relationship. Rogers (1969) identified attitudinal qualities present in effective working relationships. These were honesty, a positive attitude, acceptance and trust. These qualities will be looked for in the results gathered in the survey. To try and provide further guidance on how to assess the subjective distance between individuals it is necessary to identify what constitutes a working relationship. The results of this will be used to provide justification for the inclusion of subjective distance in the conceptual framework and in the use of the framework overall.

It was asserted in the literature review that a defining component of a shared culture is strong working relationship that relies upon communication and is forged based upon spending time with people. It was also discussed that as this process delivers deeper cultural divides, effective communication between cultural groups, or roles, will be affected. This will be analysed when exploring the nature of working relationships.

5.3.1 Constituents of good working relationships

The results in chapter 4.4 demonstrate that issues related to effective, appropriate and honest communication (50.4%) and Mutual respect, support, equality and tolerance (28.1%) represent majority constituents of good working relationships. Communication in this context is not just email communication, it may refer to a number of communication methods. The findings support the conclusions of Rogers (1969) with honesty, positivity and trust identified by a large proportion of the respondents as constituents of good working relationships. The conclusions of the literature review suggested that effective and substitutable communication is an essential part of good working relationships (Gabarro 1978), the findings in this study back up the suggestions made previously. The communication aspects reported on fall into certain areas, the effectiveness of the communication, the appropriateness of methods, and honesty between individuals.

Effective communication is an essential part of this research which aims to identify how email usage can be made more effective. Effective communication is difficult to directly define. Considering the findings of Daft and Lengel (1986) it could be suggested that effective communication occurs where the intended message is sent and received with the least ambiguity being introduced. In order to achieve this, messages that are equivocal in nature are communicated in such a way that reduces the chance of misinterpretation. Within the responses reporting effective, appropriate and honest communication there is a great deal of consideration of the method of communication. Respondents discussed that there are situations in which email may not be the most effective means of communication. For example, Respondent three stated that "Email is not suitable for discussing personal or delicate issues in professional situations".

A number of respondents considered that different means of communication were an essential part of good relationships. For example, Respondent 70 stated that communication should be "Face-to-face if at all possible" and Respondent 45 felt that "Email is effective once you have established a good relationship". Enabling effective communication appears to be an essential part of a good working relationship. Respondent 126 reported that "For me, primarily based on ease of face-to-face communication and regular face-to-face contact enabling sharing of ideas and passing thoughts". A range of communication methods are required in order for good working relationships to exist. The preferred communication methods appears to be subjective and, therefore, in order to understand the

preferred communication method of an individual would be to get to know them. Achieving this is difficult as people respond differently to different communication methods.

Guidance may be taken from Lo and Lie (2008) who considered that traditionally richer methods of communication should be selected when distance is increased and trust is decreased for a highly equivocal task. In this case the forming of a new relationship is the equivocal task, the potential for misunderstanding is high as there is no self-disclosure early on, an essential part of good working relationships as defined by Gabarro (1978). Physical distance in this example may simply be an office at the other end of the building. Trust will be naturally decreased due to the lack of the relationship. Therefore, in order to reduce the equivocality the trust needs to be increased by developing a relationship. The best way to do this is to select a richer means of communication regardless of the distance involved.

To develop the relationship the individual needs physically see the other person to build trust and reduce the equivocality inherent where relationship does not exist. Based upon this, good working relationships cannot be forged through email alone. Where the relationship does exist, the substitution of cues and depth of understanding provided by self-disclosure means that email can become a more effective means of communication. Tsugawa et al (2012) evaluated the use of a system that enabled trust networks to be used to filter email to make use more effective. The system appeared successful in reducing email load by prioritising email based on the existence of trust. However, this still fails to address the key issue of how trust relationships are formed in the first place and how this in itself may impact upon email use. A technological approach is being used to address a behavioural issue.

The appropriateness of communication is also discussed within this response group. It has been identified that inappropriate use of email is a significant concern for users across all roles. Email is not the only method of communication that could be considered inappropriate and that there are numerous definitions of what could be inappropriate about communication.

Differences such as Lo and Lie (2008) where the example has been applied to suggest that relationships cannot be forged by email alone. The discussion of

noise and interference also considers the appropriateness of the communication method where selection of an inappropriate communication method can cause problems in the communication process. Criteria for this selection can be both external, for example the nature of the content being transmitted, the complexity of information and resources available or internal, for example preferred method of sender and recipient, language and time pressures. Whilst external criteria may be out of the control of the individual, possessing a good working relationship will enable effective communication based on media selection by controlling the internal criteria effectively. The honesty of the communication is also important according to respondents. Feasy (2002) identified that honesty within a relationship is essential and Bulmer (1997) identified that trustworthiness and honesty are highly prized traits and where they are present individuals are likely to feel safe and therefore disclose. In this case, disclosure is related to the findings of Gabarro (1978) and constitutes the deeper communication that is a constituent part of good working relationships.

Honesty is also important in the development of trust. Babar *et al* (2007) observed that when developing relationships, honesty is very important in developing the trust that is required to ensure that the relationships are productive. In this study, a cross cultural perspective was taken and the assertion was that trust would help to improve relationships and the development of trust, as discussed by Lo and Lie (2008) reduced the chances of miscommunication where distance and equivocality are high. Therefore the development of trust and honesty is crucial for business relationships. Kanawattanachai and Yoo (2002), Morgan and Hunt (1994) and Rousseau *et al* (1998) discussed that the concept of trust helps to enable more open communication resulting in increased performance.

Communication has been shown to enhance trust which has a positive impact on participation and job performance (Dirks 1999, Dirks and Ferrin 2001, Ruppel and Harrington 2000). Trust is built upon the passing of information and the perceived quality and sufficiency of this information. This idea is evidenced in the data with 54.5% concerned about how their messages may be received or interpreted suggesting an awareness of the impact it may have on the development of trust. Trust itself was only identified in 7.9% of cases in the data but as it is linked with honesty the importance with which it should be considered is increased considerably. Babar *et al* (2007) identified that communication and cultural

understanding are important in the development of trust. Therefore, the factors important in good working relationships should be considered as interrelated rather than standalone.

Babar *et al* (2007) showed that the effectiveness of communication is essential in developing relationships and trust. Effectiveness in the context discussed included using the recipients' native language, and cultural understanding, in addition to language. Whilst these were universally important, the value placed on the concepts did differ between cultural groups suggesting that members of different cultures may place different value on the constituents of effective communication.

In considering effective communication the use of native language is not necessarily considered. This concept is normally explored when looking at external cultural differences but, as discussed in the literature review, the differences in internal culture may manifest in different use of language.

Language used may influence how the recipient receives the information being sent thus introducing ambiguity into the process. Evidence of language consideration is seen in the survey responses. When questioned about whether users consider the needs of others, from those who said that they did, 54.5% considered how the messages may appear and be interpreted. These responses may be interpreted as being concerned about language, ensuring the recipient understands the content. Taking the time to engage with the recipient's language demonstrates cultural sensitivities and understanding of the demands of other cultures. This may help to reduce the potential inefficiencies in cross cultural communication.

Babar *et al* (2007) found that different cultures placed varying emphasis on the importance of trust and other relationship markers. As such, the results were tested against role to explore the influence it has. The results can be seen in table 5.8 which is included to highlight the points made in the analysis.

Table 5.8. Components of good working relationships, exclusive of no answer.

| | Frequency | Percent |
|--|-----------|---------|
| Effective, appropriate and honest communication | 419 | 50.4 |
| trust, dependability and transparency | 66 | 7.9 |
| Friendly, effective personal relationships and consideration of others | 50 | 6.0 |
| Approachable and professional | 16 | 1.9 |
| Mutual respect, support, equality and tolerance | 234 | 28.1 |
| Reliability | 4 | .5 |
| Teamwork and co-operation | 43 | 5.2 |
| Total | 832 | 100.0 |

Descriptively, the findings show that different roles place differing emphasis on the important constituents of good working relationships. Senior managers are much less likely to identify effective, appropriate and honest communication than any of the other roles. In addition, they are much more likely to identify mutual respect, support, equality and tolerance as elements of good working relationships.

Otherwise, there are few significant observable differences between the roles. Chi square testing suggests that the roles do not differ significantly from one another ($\chi^2=23.759$, $p=0.163$). When tested separately there are some significant differences to note. Senior managers differed from middle managers significantly ($\chi^2=14.188$, $p=0.048$). Senior managers also differed significantly compared to business support ($\chi^2=25/905$, $p=0.001$). There was no significant difference between senior managers and academics ($\chi^2=13.733$, $p=0.056$) but this may be due to the difference in sample sizes. There were no significant differences between other roles, in fact, middle management and academics were very closely related ($\chi^2=1.796$, $p=0.970$)

A significantly different approach taken by senior managers matches a number of other observations throughout the investigation. A more insular approach will be discussed further but also different opinions have been shown in a number of areas during the analysis into role influences on email use. Statistical analysis shows that senior manager opinions on good working relationships differ significantly from middle management and business support. They do differ from academic views but the results are not statistically significant. In line with the findings of Babar *et al* (2007) this suggests that senior managers may have greater difficulty forming good working relationships outside of their culture group due to differing opinions on how they are constituted.

This is a concern as shown in the email relationship conceptual framework in figure 4.24 (see page 177), senior managers have the most insular culture in terms of relationships and a high proportion of outward facing email contact. With potential additional difficulties in forming relationships and developing trust, there is a greater likelihood of email communication being ineffective. Thomas *et al* (2009) noted differences between senior management and other workers in terms of communication observing that non senior managers were more concerned with timely, accurate and relevant information, thus increasing trust. Inaccurate (or misinterpreted) information, irrelevant or untimely messages resulted in reduced trust. These issues have been identified at length as drawbacks and wastage associated with email usage, most commonly identified by non-management users.

Senior managers, in contrast, were more concerned with adequacy rather than quality. Information coming from senior managers may lack specific direction which needs to be refined in order to appeal to operational roles potentially reducing trust. Effective cross cultural communication relies upon effective relationships built on trust. Trust is strengthened by the effective use of communication, be it mode or content. Without understanding the needs of the recipient, this cannot be achieved. Senior managers are the most insular and therefore will not have the opportunity to develop trust outside of their role. As a result, communication will not be tailored to the recipient and expectations will be inaccurate, thus resulting in the reduction of trust and further breakdown of relationships. This may be the cause of the large number of perceived irrelevant or repeated messages observed as wasteful behaviour in the survey.

Mutual respect, support, equality and tolerance (identified by 28.1% of respondents) are the other most common constituent parts of effective working relationships. This viewpoint was the most common held by senior managers when considering their opinions on good working relationships. The focus of the discussion will be on respect, equality and tolerance as evidence of good working relationships. Often, these ideas are used interchangeably (UNESCO 1995) but they mean different things. Respect means being 'properly seen and considered' (Quaquebeke *et al* 2007). Tolerance presupposes that individuals deviate from a norm and that this needs justification. The difference is identified and, rather than

being fully accepted and normal, the difference is marked but the individual chooses to ignore the implications of it (Quaquebeke *et al* 2007). This definition seems to be contrary to that of respect where people are 'properly seen and considered' rather than tolerated.

In the context of working relationships differing definitions have an important role to play, especially when cross cultural relationships are considered. Tolerance occurring from a deviation from a norm could be interpreted within the context of role differences. If an individual from one role does not fully see and consider elements from another role they can either be intolerant or tolerant of it. Either of these implies non-acceptance as the deviation from the norm is recognised.

If differences are tolerated it may result in reduced negative experience of communication but it would not enhance positive communication as tolerance and respect are exclusive concepts. If inter-role respect is to be developed then celebration of differences leading to a breakdown of considered norms is required (Martin-Egge 1999). The best way of achieving this is through effective, two way communication, email may not be the most effective manner for achieving this. Mutual respect and tolerance are considered they are both linked to diversity in that it is differences that create the conditions under which these concepts are required. Martin-Egge (1999) discussed that segments of diversity contain differences and similarities relating to culture that need to be valued and managed in order to foster an environment of mutual respect. These issues become magnified when working across cultures. Fostering these would help individuals in roles to be more mindful of the needs of others in different roles, thus mediating cross role email communication.

Kikoski and Kikoski (1997) found that heterogeneous cultural groups were more effective than homogenous groups. This suggests that mutual respect, equality and tolerance are more than elements of good working relationships, they can generate competitive advantage for an organisation. This could be an indication of why senior managers are more interested in these as constituents of good working relationships as, with a strategic view, senior managers can see the advantage to the organisation as a whole not just the needs of the individuals concerned. Noe *et al* (1996) found that the highlighting of these elements of good working relationships tended to result from diversity training, a significant proportion of

which was not effective. The emphasis of diversity in the training would also have a role to play in how it is interpreted and implemented in the workplace. For the purposes of enhancing email communication, diversity training needs to be inwardly focused and consider the working needs rather than personal cultures, race, religions and additional needs of others. Training based around roles, considering the needs of different users in their day to day activities may be more effective in achieving the respect for diversity identified.

Martin-Egge (1999) discussed that communication has an essential role to play in the development of mutual respect as it enables mutual understanding through meaningful dialogue. This further strengthens both the position of communication as an essential component of working relationships and also that effective two way communication can breakdown cultural boundaries and thus improve email communication. The different viewpoints of good working relationship have been discussed and linked to examples from different fields of theory. The definitions of good working relationships discussed in the literature review do not fully appreciate the interlaced nature of working relationships where a balance of a number of factors is required in order for them to be successful.

Discussion has also illustrated points that further highlight the difficulties of intercultural communication and add further explanation as to why email use differs between roles. A clear and essential component of good working relationships identified is that effective, two way communication is the basis upon which the relationship forms. Combined with cultural theory it is considered that face-to-face communication, in the first instance to develop relationships through rich communication, is important. This will help to develop trust, allowing for the use of less rich means of communication to be used effectively. Relationships need to be developed across roles which requires a greater understanding of the needs of others, especially when it comes to reducing misunderstanding. An understanding of the needs of the role based upon mutual respect, gained through working relationships, will help to enable more effective cross cultural email use.

5.3.2 Email relationship conceptual framework

It was discussed in the literature review that communication has an important role in the development of distinct relationships based upon the development of cultural grounding (Kincaid *et al* 1983). When considered alongside the assertions

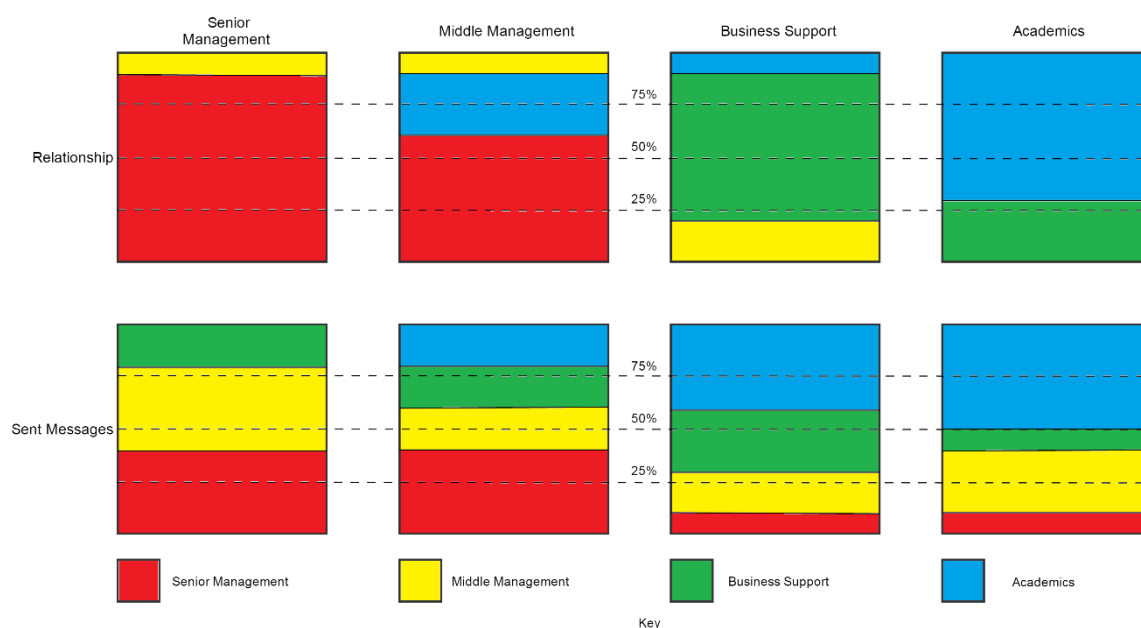
made by Hofstede (1981) that relationships help to develop flexibility in the interpretation of situations it is clear that good working relationships are rooted in communication and understanding.

Role cultural groupings will contain their own set of situations of which role members will develop their own interpretation and understanding, enhancing the communication within the role itself. Analysis of the role influence on email usage has already shown that at the role level there is a significant difference in the way that email is used and attitudes towards it.

Based upon this, it is considered that working relationships will tend to form either within roles or where roles overlap and that email communication will be more effective where these relationships exist. Figure 5.9 is a graphical representation of the feedback gathered from the interviews. Interview participants were asked to consider which role they have the best working relationship with and why. In addition they were asked to consider who they sent email to and from.

The conceptual framework is based upon the closest relationships and sent messages. On the top row, the depth of colour represents the proportion of relationships that the role reports as their strongest. On the bottom row, the depth of colour represents the proportion of sent messages directed at each role. Where the top and bottom row do not match for a role there is likely to be difficulty in cross cultural communication.

Figure 5.9. Graphical representation of relationships and sent email by role.



This conceptual framework allows for the generation of assumptions regarding the effectiveness of email communication between roles. Senior managers have a high proportion of inwards facing relationships, the majority of their working relationships are with their peers within the role. A small proportion of their working relationships deal with middle managers. A large proportion of their email goes to middle managers and some to business support. It is suggested that there is likely to be greater misunderstandings in these circumstances due to a lack of good working relationships.

A majority proportion of middle managers felt that their closest working relationships were with senior managers possibly offset the inefficiencies in cross role communication that may arise from the load generated by senior managers. Interestingly, the proportion of middle managers feeling that their closest working relationships are with senior managers is much higher than the other way around. Middle managers send a high proportion of email communication to senior managers which may not be effective due to the lower level of working relationships perceived by senior managers. The interplay between middle and senior managers is of interest as the two roles, whilst different at a significant level in analysis, had similarities. Both middle and senior managers had different patterns of sent and received email load compared to non-management role and their proportion of time spent was much higher. There were many other similarities in their usage demonstrated in the same analysis.

The inference is that senior and middle managers are most likely generating load for one another. This load is probably not ineffective email but senior managers do not report having close working relationships with middle managers and cannot therefore predict their needs or communicating with the same level of understanding as they would with a peer in the same role.

Middle managers have a low proportion of inward facing relationships. The predominant method of communication at this level is by email according to interview respondents. Based upon other suggestions, as the relationship level is low then email may not be the most effective means of communication due to the equivocality of the content. However, the low proportion of working relationships with other middle managers may be due to the nature of the work undertaken by this role. Reflecting on the interview responses there is a clear pattern relating to communication and activity within this role. Interview nine, conducted with a

facilities and estates manager shows that email is used by this role to set up meetings and pass information. The emails are very functional in nature, there is little in the way of equivocality in the exchanges. This can be seen in the excerpt shown below.

Which role do you have the closest working relationship with?

It is the senior and middle managers.

Is that because you spend the most time with them?

Yes, and because you tend to be in the same meetings with regards to dealing with the same issues.

What is the main method of communication with those roles?

Umm, emails setting up meetings, emails forwarding information on about room usage, maintenance work. I use email to carry out surveys, a good example of that is that I carry out a functional suitability survey out. I send it out to curriculum heads and what I am after is do they think their rooms are fit for purpose, are they well equipped etc.

This suggests that this manager would not have regular contact with curriculum managers which would manifest in face-to-face communication with them rather than the sending of email. A similar pattern can be observed in Interview thirteen, conducted with a transformation manager which sits outside the normal hierarchy within the institution and the participant discusses that they have no line management responsibility. Again, email or face-to-face is discussed as the primary method of communication.

Interview three, conducted with a governance officer, yields a similar pattern. Again, this is a standalone role and the predominant method of communication is via email. A different pattern can be seen in Interview five, conducted with a curriculum manager. This participant discussed that the preferred method of communication was to meet with other middle managers, which were generally other academic managers. This is evidenced by the comment indicating that there is only one other office. An excerpt from this interview can be seen below.

Thinking of other middle managers, what is the predominant way you communicate with them?

Other middle managers, I will go and see them. I will either speak to them in here or I will go to their office because there is only one other office.

Why would you do that rather than phoning or emailing them?

You get more done, if you have a problem you can thrash it out. You can sort it out rather than sending emails back and forward. If they need more information about something you can give it to them straight away, or if you need more information. If you are sending emails back and forwards, and you get interrupted, it can take a lot of time to get the problem sorted out. I think it is easier if you go and see them.

There appears to be a difference between the communication approaches taken by academic middle managers and business support managers when communicating within the role. Two of the three middle managers interviewed had no line management responsibility and tended to align with senior managers.

Business support middle managers may have no requirement to communicate outside of their job chain as collaborative decisions will be taken at a strategic level. However, academic middle managers work in cross specialisation teams. If academics teach in programmes managed by different chains then managers will have to collaborate. It was observed in the discussion on roles that the academic role is more distinct than the other roles. It is also suggested that the academic manager is distinct to the business support manager.

When looking at communication external to the role, it is suggested that the profile of middle management, regarding relationships and the volume of email, exists due the operational nature of the role. Middle managers interpret the strategy and passing on instruction to those who they manage.

Business support relationships are mostly inward facing suggests that communication via email outside of the role may be misinterpreted. The majority of email generated by this role is orientated externally. The biggest mismatch being between relationships with, and sent email to, academics. A similar issue may be present when communicating with senior managers, whilst this appears to be limited, there is no reported relationship with senior managers. Business support participants responded that senior managers and academics are the most difficult to communicate with. This suggests that there may be significant waste present in

the email communication from business support to senior managers and academics possibly email is not replied to or that there is interference introduced by low levels of reported relationships. There may be some mitigation introduced when emailing academics as academic interview participants felt that there were some good working relationships with business support, this may help to improve the reception of email.

The academic role also shows a majority of inward facing relationships, likely due to the nature of their role. This is not surprising as role influences on email use showed that academics had a very different relationship with email. Around half of email is sent within the role, the next most is sent to middle managers with a small amount sent to business support and senior managers. Academics do not perceive close working relationships with middle managers but the opposite is true, this may mitigate interference in the email process.

What is clear is that senior managers and academics tend to be inward facing when considering their relationships than other roles. This will make role identity stronger and increase the chance of misinterpretation of communication when it is sent outside of the role. A high proportion of academic email communication stays within the role, therefore not likely to be a concern. A high proportion of senior manager communication is sent outside of the role which suggests that there is a high chance of misinterpretation by all the other roles. It should be noted that senior managers have little or no communication directly with academics and they reported in the interviews that the academic role is the one that they have the greatest difficulty communicating with. Similarly, academics all reported that senior managers was the role that they found it hardest to communicate with.

The middle manager role seems to function as a bridge with working relationships that are outward facing. This is most likely a function of their role. In terms of business support, the variety of jobs makes it difficult to generalise the meaning of the conceptual framework but they tend to build relationships and communicate with all other roles as their job demands. The perceptions of best working relationships are not always reciprocated, for example, middle managers perceive that their best working relationships are with senior managers and academics. However, none of the academic interview participants identified having the best working relationships with middle managers and it was only mentioned by one senior manager in amongst other examples of relationships with other senior

managers. This may suggest that middle managers misinterpret their working relationships. Weight can be given to this argument as the middle management role has evidence of the highest level of overload and wasted time.

A final, and important, insight that the conceptual framework provides is the mismatch between good working relationships and sent email. If good working relationships enhance communication, reducing the issues associated with equivocality, then in order for the most effective use of communication to take place, the relationship arrows and sent message arrows should be proportionally similar. That is not to say equally split between all roles but, using senior managers as an example, the vast majority of the relationships are inwards facing. Most effective use of communication, based on cultural theory, would result from the same proportion of inward facing communication. However, this is not the case. The discussion, and conceptual framework, is based upon a small number of interviews meaning that care needs to be taken when interpreting the impact of the findings. There is evidence in other parts of the study that support the assertions made, particularly those that show differences in the use of email between roles. A larger scale study to ensure the direction of relationships and sent email are more representative of the whole population could be done to confirm these findings.

5.3.3 Conclusions on relationships

Having initially found it difficult to identify what constitutes a good working relationship in existing literature the analysis of user perceptions of good working relationships demonstrates that consideration needs to be made of concepts that may lie outside the traditional interpretation of working relationships. Users strongly identified that effective and appropriate communication is an essential part of a good working relationship. Whilst this did relate to existing literature which considered that effective working relationships could be characterised by communication that went beyond superficial matters, the analysis and discussion went far beyond this. Honesty, language, respect and tolerance are also considered important elements of good working relationships.

The analysis of cross cultural communication information gathered during the interviews demonstrates where issues may be present. The perception of good working relationships has been mapped alongside the proportion of sent messages. The purpose of this was to initially try to map the difference between

sent and received messages observed in earlier analyses. Evidence suggested that a high proportion of working relationships are focused within roles. In addition, a large proportion of email traffic is sent outside of the role. Based upon the discussion of good working relationships it is asserted that in these circumstances there is a high possibility of misinterpretation of communication between roles.

There is also evidence of an imbalance in perceptions. Users in some roles perceive working relationships with users in others roles and this perception is not reciprocated. There is further danger is of assuming that relationships exist where they don't as it may lead to miscommunication. There is evidence to suggest that greater cross cultural relationship building needs to be undertaken. This suggestion is made sector wide as the interview participants used to form these judgements were drawn from a cross section of the Colleges involved in this research. There is evidence of hierarchical communication within the conceptual framework but this is not backed up by fully hierarchical communication processes.

This analysis and discussion has answered research question two. Users appear to view the constituents of good working relationships as being based upon effective and appropriate communication along with Honest, language, respect and tolerance. There were also differences in the viewpoints from different roles, adding further evidence to answer research question one.

5.4 Analysis and discussion of changes in email use

Having explored the cultural and relationship impacts on email in detail it is now essential to establish the current volume of use in order to answer research question three and to establish and quantify the existence of overload in order to answer research question four. A number of studies explored in chapter 2.6 have been revisited in order to quantify the concepts discussed in the literature review. This chapter provides additional evidence to answer research question one as further analysis using role has been undertaken. Research question three is addressed to consider how email use has change and further evidence for research question four and five has been provided looking at overload and manageable maximums.

In an effort to quantify email usage a number of authors explored email usage to track the phenomenon of email growth and in some cases linked it to email overload theories. Markus (1994), Frazee (1996), Whittaker and Sidner (1996) and

Pitney Bowes (2000) explored email usage either by measuring the number of sent or received messages over a daily period or by looking at the time spent daily using email. There is little consensus relating to what information to gather, how to categorise and present the information and what conclusions to draw from the information gathered.

This chapter will build upon the work of the authors who have previously explored email usage by first gathering information on both emails sent and received as well as time spent using email. The information gathered will be compared to previous studies which have included measurement of email usage to attempts to observe any patterns of change over time. Finally, previous work will be built on by exploring the desire to change email usage, the perception of manageability in terms of email use and perceptions and causes of overload in email usage. To fully understand the implications of email usage it is essential to overview email overload and its implications. Role analysis will also be employed in this chapter. This has been used as some of the studies used for comparison used specific roles within organisations. By splitting the analysis by role it will be possible to compare like for like more effectively where the initial results do not suggest any similarities or differences. It was noted in the literature review and earlier analysis that message volume and time are the key measures concerned with email overload. It is therefore important to consider the changing trends in Sent Messages, Received Messages and Time Spent of email users.

5.4.1 Sent Messages

A mean of 18 messages sent per day is observed, representing a slightly reduced number of sent messages to the findings of Dabbish and Kraut (2006), of 21, based upon total of 484 questionnaires being returned. The similarity in scope and the results in these two cases go some way to demonstrate that the findings from the Welsh FE sector are consistent with examples from national studies.

A total of 83.5% of respondents reported sending 30 emails or fewer per day. Compared to Markus (1994) this is a significant finding as in that study 75% of respondents sent 30 emails or fewer per day with 25% sending greater than 21 per day. Here, the percentage of users sending more than 21 messages per day has risen to 33.2% illustrating an upward trend in message volumes.

Sillince *et al* (1998) identified 77% of respondents sent less than ten messages per day compared to on 36.9% of respondents in this study suggesting a rise in

the number of sent messages overall. Markus (1994) focused on 375 managers, In order to compare like for like, the results gathered in this study were filtered to remove non-management responses highlighting significant differences. Overall, 56.8% of management staff report sending fewer than 30 messages compared to 75% (Markus 1994). A total of 68.4% sent 21 messages or more compared to 25% (Markus 1994). This suggests that the volume of messages sent by management grade staff has increased at a much higher rate than the results for the overall sample.

An average of 30 messages per day were sent by management roles, higher than other studies observed. Ingham (2003) found that managers sent on average 18 messages per day and Dabbish and Kraut (2006) observed 21 sent messages per day. This represents a large change in the behaviour of managers in relation to the sending of email messages. Flood (2001) identified that 25% of managers sent more than 30 emails during a working day and 40% send between 11 and 30. In comparison to, 56.8% report sending less than 30 messages with 43.2% sending greater than 30. It is clear that email sent by management has continued to rise. The results also supports the findings of Ingham (2003) where an average of 17 sent messages per day was recorded, or an average of 18 per day for management staff. Ingham (2003) only used responses from twenty interview candidates to base conclusions upon. For a very similar rate to be recorded from 1006 respondents demonstrates a strong trend regardless of the number of respondents.

The results also highlight a higher number of sent messages per day compared to Szóstek (2011) who measured nine messages sent per day. Szóstek (2011) used sixteen users, loosely defined as eight from academia and eight from industry making it difficult to draw direct comparisons in this case. The cumulative average for non-management roles is 15 messages sent per day which is significantly below the management average of 30. This imbalance will have a direct impact on message load both for management and non-management staff in the study.

The average number of messages sent by management roles is 30 with a perceived maximum of 27. The average number of messages sent by non-management staff is 15 with a perceived maximum of 18. This result is significant as it suggests that managers are sending many more messages than they perceive are manageable to send, therefore exposing themselves to email

overload. The results also show that for non-management roles demonstrate perceived maximums exceeding current levels. For all staff the perceived maximum for messages sent is 20 which is slightly more than current levels.

A total of 84.1% of respondents felt that their sent message load had increased. Only 2.7% felt it had been reduced and 13.2% felt that it had roughly stayed the same. The proportion of middle and senior managers who felt that their sent message load had increased was higher than academic and business support roles. 88.9% of senior managers and 93% of middle managers felt that sent load had increased. This is compared with 79.7% for business support and 83.5% of academics. Crucially, management perceptions are above the overall average of 84.1%. These findings demonstrate an increase on the 78% increase noted by Plantronics (2013) between 2005 and 2010.

A possible explanation for the increase in management use of email is that email generates a record of communications that can be used as managers see appropriate. Research into literature dealing with email policy deployment shows that management often reserve the ownership, and right to search through emails. This would mean that management could generate evidence that a message had been delivered, and even read, and if action was not taken then the recipient could be held to account. This was observed by Connolly (1996) where it was shown that email had become the predominant means of communication for managers.

5.4.2 Received Messages

An average of 26 messages received per day was observed. Similar to Ingham (2003), Pitney Bowes (2000) and Frazee (1996), the method employed a similar cross section approach but returned different results. Similarities exist with Ingham (2003) where 25 received messages compared to 26 in this study were observed. Pitney Bowes (2000) observed 39 and Frazee (1996) observed 15 illustrating a lack of a consistent pattern in received messages change.

Sillince *et al* (1998) observed that 81% of respondents received less than ten email messages per day. This is compared to only 17.3% of respondents in this study receiving ten messages or fewer per day. The results demonstrate a significantly reduced number of received messages overall when compared to the findings of Whittaker and Sidner (1996) and Dabbish and Kraut (2006). Dabbish and Kraut (2006), observed 41 messages received on average per day compared to 26. As both studies considered all elements of a group including workers and

managers, this difference is significant. In comparison, the study by Whittaker and Sidner (1996) observed an average received message load of 49 messages per day.

When compared with the findings of Fisher *et al* (2006) who observed 87 received messages, 26 per day is considerably less. However, Fisher *et al* (2006) studied a high technology company which may have had an impact on the number of messages sent and received as email use reflects a more significant part of the working culture in that industry. Szóstek (2011) shows a lower number of received messages at 17. This is much lower than the 26 observed in this study.

Flood (2001) showed that 55% of management role users received 20 emails or more per day. This is very similar to the results observed in this study when looking at all users with 51.8% reported receiving more than 20 emails per day. The percentage of managers receiving more than 20 emails per day is 86.5%, significantly higher than that shown by Flood (2001). The results show an average of 41 messages were received by management role users per day, much higher than the overall average. Management averages are closer to the observations made by Whittaker and Sidner (1996) and Pitney Bowes (2000).

Compared to management role users, all non-management roles received an average of 22 messages per day, as with sent messages this is significantly lower than management roles and lower than the overall average. This suggests that the overall average of received messages is being influenced heavily by management roles.

Received load was also compared between all management roles and non-management roles. The average number of received messages by management roles was 41 with a perceived manageable maximum of 30. The average number of messages received by non-management roles was 22 with a perceived manageable maximum of 19. Both management and non-management roles exceed perceived manageable maximums. This is significantly higher in management roles indicating a high level of overload exposure. These findings help to quantify those of Tassabehji (2005) who found that managers were more likely to feel that they are receiving too many email messages.

A total of 87.4% of respondents felt that their received message load had increased with 2.4% feeling it had decreased. Senior and middle managers were

most likely to feel that their load had increased with 93% and 91.8% respectively. Academics are near the overall average with 87.6% perceiving increase along with 84.1% of business support. Overall, 86.2% of all non-management roles perceived increases, slightly below the overall average of 87.4%. A total of 92% of all management roles perceived increases which is above the overall average.

5.4.3 Time Spent

Respondents were asked to provide a considered estimate of the time they spent using email on a daily basis. Whilst there are other direct measures for this, perceived time spent was viewed as a valid measure as perceptions were being tested. An average of 65 minutes overall was recorded in this study. Compared with studies that employed a similar cross section approach an increase is shown over the 50 minutes recorded by Frazee (1996) and 49 minutes recorded by Lyons (2002). The results do show a decrease when compared to the 95 minutes observed by Huang *et al* (2011). Whilst comparisons can be drawn due the cross section approach taken by Huang *et al* (2011), the high technology industry being studied may have impacted upon results. Similar observations can be applied to the findings of Davenport (2005) who gathered data from a technology based knowledge Generation Company.

Significant differences can be observed in this study when compared with Sillince *et al* (1998) with 18% spending less than 30 minutes daily compared to 77% by Sillince *et al* (1998). The results are very similar to those of Ingham (2003) with 69 minutes spent compared to 65 in this study.

5.4.4 Desire to Change

Respondents were asked to indicate whether or not they wished to change their email usage, an indicator of overload. A significant minority of 36% of all respondents felt that they would like to change their email usage and 64% would not. Of those who responded that they wished to change their usage 33% cited volume and content management issues as the primary reasons. A further 30% cited the desire to receive fewer unsolicited communications and 10% wished to improve personal contact with colleagues. For those who responded that they did not wish to change their email usage the only significant responses were that 36% felt that current load was manageable but that if it should increase then it would become unmanageable. 8% felt that email was essential for their job role and could not be decreased.

5.4.5 Perceived Manageability

Respondents were requested to consider the maximum number of messages that are manageable to send and receive in a day. This measure links to the idea of coping strategies as proposed by Whittaker and Sidner (1996), Fisher *et al* (2006) and Dabbish and Kraut (2006). If the message load is coped with properly then the user may not become overloaded. Ingham (2003) and Dabbish and Kraut (2006) considered that incoming load was a key stressor in email overload. When considered alongside coping strategies there is no measure to link the effectiveness of coping strategies and the actual load itself. Dabbish and Kraut (2006) directly questioned about overload but this was linked to coping rather than message volumes.

The results demonstrate that the average level of sent messages is slightly below the average level of perceived manageability, suggesting that it is not contributing to overload. However, the level of received messages is higher than the perceived level of manageability suggesting that received message load is a contributing factor in overload. This supports the assertions made by Ingham (2003) and Dabbish and Kraut (2006) that received message load is a key factor in email overload. It is important to note that the influence of manageability is supported by the findings of Reinke and Chamorro-Premuzic (2014) who identified that whilst load is linked to overload, personality played an important role in predicting whether a person is likely to become overloaded at a given email load. This suggests that perceptions of manageability will differ between individuals which they do.

5.4.6 Perception of Wastage in Email usage

Wastage in email usage considers whether users feel that they are wasting time when using email. These causes of wastage may contribute to feelings of overload.

An average of 64.53 minutes is spent daily, representing 14.54% of working time based upon an average 37 hour working week. Time spent is significantly higher than in studies carried out by Frazee (1996), Lyons (2002). It is lower than observed in studies carried out by Davenport (2005) and Huang *et al* (2011). It is worth noting that in each of these cases there are differences in approach, sample size and scope. Results are very similar to those observed by Ingham (2003). However, the overall time spent is lower than identified by McKinsey Global

Institute *et al* (2012) who observed 28% of the working week being taken up using email. The quoted percentage is not necessarily entirely representative as the study consisted of knowledge workers only and the time included general internet access as well.

A total of 59.5% of respondents felt that they wasted time using email. As this is the first study to directly measure user perceptions of wastage there is no other work with which to compare these results. An average of 18.69% of the time that respondents spend using email is wasted. This time is only representative of the users who felt that they wasted time.

The main causes of waste were identified with the biggest cause, identified by 40.8% of the respondents, being work related emails that are either not relevant or duplicated. These are not Spam emails as they are related to organisational business but they are not necessarily relevant to the individual receiving them.

Authors such as Parker (1999) believe that policies should be able to deal with this type of wastage by laying out clearly expectations for usage. Other authors such as Denning (1982), Whittaker *et al* (2006) and Hurst (2007) suggest that filing and rigorous inbox management are the key to reduce unnecessary emails. However, there is no way to filter messages in such a way that those that are not relevant to an individual are removed. To achieve such a reduction the sender needs to consider their role in the generation of the content.

The literature review discussed the importance that should be placed on the role of the sender in the communication process. By knowing, or considering the needs of the recipient, irrelevant communications may be reduced. Currently, in order to demonstrate the importance of messages, the sender may mark the message as important. This demonstrates what is important to the sender rather than what may or may not be important to the recipient (Goodwin 1999). This consideration was also made by Hiltz and Turoff (1985) who considered that the sender must be as responsible for generating wastage.

It is essential focus email training beyond how recipients manage what comes to them and looks at behaviours associated with generation of content. Well managed email groups may also help to reduce irrelevant messaging. Evans and Wright (2008) proposed that organisations should instigate strategic shifts towards discouraging behaviours linked to lack of care in email use. Aside from attempting

to reduce wastage, Merten and Gloor (2010) discussed that too much email sent and received is linked to reduced job satisfaction. This helps to draw a direct line between email wastage and job satisfaction which may further increase organisational waste by other means.

Up to 6.3% of respondents felt that personal management issues and private use contributed to email wastage. Hurst (2007) suggests it is good practice for organisations to allow users to send and receive personal communications via company email systems. This undoubtedly distracts users from using their email for work purposes. Whilst not encouraged, private use of email is not directly forbidden in a number of the institutions used in this study.

Interestingly, the main drawback to email, the lack of face-to-face contact causing a breakdown in communication, as discussed by authors such as Daft and Lengel (1986), Rice and Shook (1990), Lee (1994), Newberry (2001), and Tims (2011), did not feature at all as a cause of email wastage in this particular study.

5.4.7 Discussion of changes in email usage

All roles are experiencing an increase in email load, in terms of both messages sent and received, when looking at studies that used comparable sizes of sample groups and a spread of participants.

Results have shown that the number of messages sent and received per day by management roles has increased greatly compared to examples from the literature. The increase in management usage as compared to Markus (1994) shows that management use of email has increased dramatically with only 56.8% of managers sending less than 30 emails daily compared to 75%. Sent message loads by managers has increase to 30 per day which is higher than observed in other studies. It is important to consider why email usage should have increased so significantly for management grade staff.

Email has been shown by authors such as Markus (1994), Kitchen (1997), Tassabehji and Vakola (2005) and Cunha and Cunha (2006) to be an effective management tool leading to better communication in the workplace suggesting a link to increasing usage. Huang (2002) further found that managers who effectively use email to communicate with subordinates tended to enjoy better relationship. Lucas (1998) considered email to be an excellent management tool as it may discourage distractions that are caused by telephone calls and meetings. This has

the negative effect of reducing the face-to-face and verbal approaches that are considered to be more effective in fostering empowerment and motivation as observed by Hewitt (2007). This is not the case in all studies, Brady (2006), for example, identified organisations where managers were attempting to reduce email usage to improve communication. Additionally, O’Kane *et al* (2007) noted that volume of messages was not enough to ensure good communication; the effectiveness of the communication is tempered by composition of the message. Hewitt (2006) showed that email had no positive impact on line manager relationship, when considered in conjunction with the findings of the literature review, where it was argued that relationship is not just built by communication but that it impacts upon the effectiveness of communication; which may suffer from overuse of email.

Romm and Pliskin (1999a) raised concerns that as managers increased their use of email to communicate with subordinates, they increased their level of control over the timing and nature of communication events. The ability to send, action and respond to messages when they want would do little but develop a communication culture of control through email. Overload cannot be ignored. By considering these two issues together it can be assumed that increasing message numbers will not necessarily lead to better communication. Whilst a judgement cannot be drawn about the increase in email numbers there is evidence to suggest that it may not be positive on overall communication, especially for management grade staff.

It is difficult to conclude whether or not an increase in message load has a negative impact on the users. Dabbish and Kraut (2006) observed that an increase in load for managers may be as a result of an increase in the number of subordinates or the number of projects being worked on at any given time. As such, the nature of the work undertaken will impact on the change in message load. Other working patterns may impact on this, for example, Dabbish and Kraut (2006) further observed that increasing the number of meetings actually increased the number of email messages being sent possibly due to organising meetings and disseminating minutes. Dabbish and Kraut (2006) also found a significant link between the number of spam messages and the perception of increased overload related to increased message load.

With such high proportions of managers identifying message loads as increasing when loads already exceed the perceived maximum number of messages that are manageable to send, management roles may experience overload related to sent messages. A further indicator can be gathered by filtering staff who identified spam and irrelevant messages as being a cause of wasted time when using email. This fits in with the findings of Dabbish and Kraut (2006) where spam was a cause in increasing overload. The greater majority of users who identified spam and irrelevant messages as being causes of wastage also perceived an increase in sent messages load. This is particularly true of middle management grade staff where 96.2% felt load had increased and none felt it had decreased.

Having more email to send than is received reduces satisfaction and work performance (Merten and Gloor 2010). Therefore, having a balance between sent and received messages is important. Data showed that there is a difference between the numbers of messages sent and received which may be directly damaging to satisfaction and increase the potential for overload to occur. Time spent using email appears to have increased with two notable exceptions, the findings of Davenport (2005) and Huang *et al* (2011). The findings from these studies are from high technology organisations who are more likely to use email to communicate.

In order to consider the changes in time spent it is useful to look at the average time taken per message using the examples that record data from all three. There are only three examples, including this study, for which an average can be compared. Ingham (2003) suggested an average per message of 1.64 minutes, and this study shows 1.5 minutes per message. The time span from which these averages were taken suggests that there has been little change in the time spent per message when using email but that there has been a change in the volume of messages, particularly for management staff, as previously discussed.

Previously the desire to change email usage has not been considered and this study considers this for the first time. Whilst 36% of all users wishing to change their email usage does not seem highly significant it is important to consider which users are represented in this group. The proportion of users wishing to change their email usage increases to 44% where responses are filtered by those who send more messages than on average are perceived to be manageable. If the same filter is applied to received messages then the desire to change increases to

47% of all users. This suggests that received message load has a slighter greater impact on users than sent message load as well as showing that where the number of received messages exceeds the perceived maximum manageable it increases the likelihood that users will want to change their usage. Whilst this is not a large difference it does show that exceeding manageability does impact on the desire to change. There are direct implications on overload. The level of received messages exceeds the perceived level of manageability suggesting overload. Incoming load excess has been identified by Ingham (2003) and Dabbish and Kraut (2006) as a major cause of overload. By comparing actual load against perceived manageability the fluctuations observed in usage can more accurately be linked to whether overload is considered to be a result of changes.

5.4.8 Conclusions on changes in email usage

Results demonstrate that there is no linear pattern in the increase in email usage, however, the data demonstrates increases in usage by all users and by management roles in particular. Exploration of the literature in chapter 2.6 suggested that there was an increasing trend leading to email overload, a conclusion that is not supported by the evidence gathered here. However, the current level of load exceeds that which is perceived as manageable and when this is combined with the level of desire for change and the perception of overload amongst the participants, it is clear that the current level of email usage is causing overload.

Where previous papers have failed to demonstrate a clear link between levels of usage and feelings of overload, the measure of perceived maximums is used in an attempt to address this. Whilst usage statistics may fluctuate between papers and across timeframes, an increase is not necessarily a precursor to email overload itself. If the load increases in line with the perception of manageability then it may be considered that the user is not overloaded. Where usage exceeds the perceived level of manageability then there is cause to be concerned about overload. Additionally, where load exceeds perceived manageability, the desire to change usage is higher than the average further implying a measure of overload.

Answers have been provided to both research questions three and four in this chapter. Email use has changed and whilst the overall statistics appear not to show an upward trend there is evidence that management use of email has increased significantly. In addition, significant evidence has been presented here

to show that overload does exist within the FE sector as evidence by differences in actual and perceived maximum use as well as evidence of wastage. Research question five has also been addressed, adding further to the discussion in chapters 5.2, demonstrating that perceived maximums appear to be a good measure of overload.

5.5 Analysis and discussion of the future directions of email use

Having established the impact of culture and relationship as well as how email use has developed it was necessary to address an issue that arose due to a lack of evidence in the literature review rather than detailed discussion. No research had considered how email use will develop in the future and what users need in order to support themselves as a result. Considering this was considered to be essential in ensuring that the proposed conceptual framework discussed in chapter 2.9 would endure as technological shifts occurred in the future. This chapter will provide evidence to answer research questions six, considering how email use will change in the future, and seven considering how behavioural changes could be implemented to support change.

A number of historical perspectives on the development of email and the technological and behavioural changes that have taken place have been considered throughout this thesis (Denning 1982, Hiltz and Turoff 1987, Whitaker and Sidner 1996). In order to validate and implement the proposed conceptual framework it is important to analyse the further opinions that users have about email systems.

Respondents were asked to consider whether email usage will continue to grow in order to answer research question six, how user behaviour could be changed to improve email usage and whether features of email systems could be developed in order to remove barriers to effective software usage that may be present in order to answer research question 7. Approximately 3000 responses were gathered in total for the three questions which provide significant insight into the perceptions of users. Whilst the results were coded based upon emerging themes in order to identify key areas for discussion, direct quotes and feedback from interviews will also be analysed and discussed. Importantly, these findings will provide a context in which the proposed conceptual framework can be deployed.

5.5.1 The Future Growth of Email

A total of 88.6% of respondents felt that email usage would continue to grow in the future. This prediction compares with the 82.1% who felt that sent loads had increased and 85.8% who felt that received loads had increased (see tables 4.38 and 4.39). The analysis of role implications (chapter 5.2) and email use (chapter 5.4) showed that actual loads exceeded the perceived maximum that are manageable across the participants in this study. The results in this chapter suggest that the issue of excessive load is set to increase for the foreseeable future. A majority believe this to be the case. As no previous study has attempted to look at the future implications of email usage there is little to compare to.

Of the 894 respondents who believed that email usage would continue to grow, 247 provided qualification for their answer. This was not directly requested but these respondents clearly felt that they wished to give their input. The issues that were most commented on were the shift in cultures (36.4%) and that increases in email would occur in conjunction with other technology or as part of technological shift, representing cultural change. Respondents felt that a cultural shift towards the use of email over other forms of communication is proliferating. A sector wide approach to increasing email usage over other forms of communication was noted by some of the respondents.

A driving factor may be the increase in remote working and non-geographical teams and the role that this plays in the increase in email usage. This was observed where respondents reported that their institutions had recently undergone mergers resulting in more than one campus located in different geographical areas. This introduces physical distance into the communication process and may influence the culture of the organisation towards the use of email as the alternatives are either costly or difficult to achieve. Some respondents also felt that cost cutting was further driving the cultural shift. The opportunities to travel for meetings as well as cutting down on post were cited as examples of this. As email is viewed as cheap and easy, respondents felt that the culture was leaning further towards the encouragement of this method. Markus and Robey (1988) noted that the relationship between information technology and organisational change, and therefore cultural shift, is a key concern. In addition the relationship between information technology and organisational change, and therefore cultural shift, is a key concern (Markus and Robey 1983).

At the time of writing, there was little in the way of generalisations in the relationship between the two. There is recognition by Pfeffer (1982) that technology will act as an exogenous force determining the behaviour of organisations and the individuals that work within them. In essence, technological developments will determine the pace of cultural change rather than a culture determining the adoption of technological change. This helps to explain the responses received relating to global shifts in culture. There is the impression that respondents felt that cultural shifts were happening outside of their control and the pace of change is increasing rapidly.

Robey and Azevedo (1994) and Robey and Boudreau (1999) are considered to be seminal works on the relationship between information technology and culture within cultures. The social consequences of the introduction and use of technology are difficult to determine as individuals can reinvent the properties of information technology during its use. This can help to explain why a technology, such as email, can have different consequences within the same culture and explains why there are differing opinions towards the implications of future growth of email. Where differences exist between cultures values and the technology there are grounds for cultural change. As technology is rapidly developing alongside a rapidly changing cultural landscape so the pace of perceived cultural shift will increase. This helps to explain the perceptions of the respondents, the cultural shift towards increased technological usage that is perceived is a consequence of both technological developments and new driving forces as a result of changing cultural landscapes.

Brynjolfsson and Hitt (2000) further considered the value of technology in organisations has shifted away from the raw power of the systems to get things done and towards the imperative for managers to invent new processes, procedures and structures to leverage the capability of the technology. It has been argued that a core measure of the value of technology lies in its ability to enhance work practices and that in turn this leads to the development of new work practices which increase output, quality or other key performance indicators (Brynjolfsson and Hitt 2000). These ideas impact in two ways. The rapid change in cultures within the sector may be attributed to management leverage of newly developing technologies, or of existing ones. This would appear logical when looking at the responses expressing concern over communication across merged

institutions. In these cases, elements of the new institution will be spread across a large geographical area. There will be an imperative to reduce the communication interruptions that may occur as a result of this. In this case, the most cost effective method would, superficially at least, appear to be to further leverage existing technologies to meet this need.

As a result of this, the reported increase in email usage can be explained and forecast continued increases can be put into context. The second, and perhaps unforeseen implication is that management led changes will lead to new working practices. Managers play a key role in setting strategic objectives and will therefore set the tone when it comes to the adoption and use of technology in the workplace. If users perceive that email is considered to be the most suitable method of communication in the new situation they find themselves in then they may increase their usage accordingly. This may not suit all users.

Generally, as observed in the literature review, high technology organisations tended to adopt newer technologies more quickly as a result of strategic implementation. Edvadrsson *et al* (2007) noted this with RSS feed implementation. However, there was an instance of rapid adoption by a lower technology organisation due to the presence of a 'Technology Evangelist'. This individual, placed at a strategic level, was able to influence technology adoption more so than those with less of an understanding. A method of addressing some of the concerns discussed here may be introduce such an individual at a sector wide strategic level to implement changes in email management.

Leidner and Kayworth (2006) went on to further suggest that organisational culture and technology are intertwined, observing that US and UK examples studied tended towards a technology adoption culture based upon process and efficiency. A variation in cultural outlook was observed when considering the adoption of systems. The analysis of role influences (chapter 5.2) showed that different cultures within end user profiles, based upon roles, impacted upon interactions with the technology. Similar observations can be made of the impact that culture has on the perception of whether the use of email will continue to grow. A number of respondents felt that an increase in email usage would not be a bad things as they viewed the use of the technology as being effective. These respondents fit the profile of those who influence the technology around them to make it useful for them rather than viewing it as a potentially damaging factor. It is clear that the

perceptions that culture is shifting and that technology has a role to play in this are valid. What is not clear is whether or not the effect is positive or negative. The tone of the comments suggests that the changes observed are not necessarily for the best.

For the respondents who provided reasons why they felt that email usage would not continue to grow, the most common response was that it would be surpassed by other methods. Respondents felt that instant messaging, skype and other social media would act to reduce the number of emails as the functions could be carried out, in some cases more effectively, by these other methods. Awareness of other methods shows an acceptance of the role that technology plays. Without the support of strategic decision makers the chances of alternative forms of technology becoming the norm are not high.

There are a number of appropriate alternatives to email for many of the tasks for which it is used. There are document sharing systems, meeting planners, simple text sharing systems for instant messaging and so forth. What each of them cannot do is replace all of the functions that email has come to be used for. In terms of cost and the potential for leveraging technology, it may not be effective for email to be replaced by more than one system, requiring time for users to learn how and when to use them. On an individual basis there may be opportunity to switch to alternative technologies for some interactions. A user may switch to using instant messaging with a small group of likeminded users. If this approach does not become the accepted norm then there will still be requirements to use email. This could potentially have the opposite to the desired effect as some users become difficult to reach as they are not using email.

Whether or not respondents felt that email would continue to grow, there is clear evidence that the cultures within the sector are driving the use and potential increases in email usage. Where some users view email as a useful and effective tool there are many who are concerned about the impact it will have on their time to do other things. There are feelings that the situation has reached saturation point and that an increase in usage would be detrimental. The potential for other systems to replace email is recognised by some but are not the norm. There is also the argument that a replacement for email would simply shift the issue to another communication medium.

The idea of a saturation point is also brought up in the responses, implying that there is no more capacity to increase usage and that to do so may be detrimental. Media saturation theory considers that continued, long term exposure to media types dampens the impact that it has on individuals (Sherry 2002). Whilst this theory is aimed at maximising the effectiveness of advertising it has parallels in email saturation. Excessive use has been shown to have significant detrimental effects on the user (Ingham 2003) including desensitisation to email and possibly withdrawal from use. By linking OT with media saturation theory it is possible to see how a saturation point may be identified by individual users. This links with the relationship between perceived maximums manageable in terms of sent and received messages and actual load. The responses provided here lend further weight to argument that email overload is highly individual and that matches between perceived maximums and actual load should be a focus in increasing email effectiveness not least because the wellbeing of employees may be adversely affected causing a health and safety issue.

5.5.2 Changes in User Behaviour

Respondents were asked to provide examples of how user behaviour could be changed to make the use of email more effective. This question is looking at ongoing behavioural changes as opposed to technology or systems changes and responses may consider actual behavioural changes or the means to bring them about. Responses were coded into common themes which will be reported on to look at the most common suggestions for improving email effectiveness. Of the 1010 respondents, 248 failed to provide an answer to this questions. The most common theme was that greater consideration of others and consideration of the necessity of messages would be the most desired behavioural change (16.7%). The second theme relates to the first and reflects a desire for email to be used more efficiently with suitable alternatives explored, emails not sent where they are not necessary and that expectations of responses are adjusted (15.7%). The third most common behavioural change suggested would come through the use of training (14.2%).

Consideration of others has appeared a number of times in discussion. The majority (85.2%) of respondents felt that they already considered the needs of others when using email. Despite high levels of self-reported consideration of others, overload is most likely still present due to imbalanced between actual load and perceived maximums manageable. Goodwin (1999) noted that an increase in

the number of sent emails is a key cause in email overload. The literature review suggested that sent email load and consideration of the needs of others are directly linked. If the needs of the recipient are considered effectively then the number of sent messages should be limited to only the most essential communications. However, the results analysed and discussed in chapter 5.2 suggest that users are often sending more messages than they believe to be manageable and are therefore contributing to load.

Whilst a high proportion believed that they considered others it is clear that there is a need to further address this in order to enhance email behaviour. Brady (2006) noted that reducing sent message loads should help to reduce the reliance upon email for communication. In turn this should enable users to more effectively place the needs of the recipient over their own. Interventions to reduce the effect of lack of consideration tend to focus on the use of the software rather than in the adjustment of behaviour such as in Jackson *et al* (2003). However, in the same study it was suggested that training should play a role in reducing this overload.

An important minority (14.2%) of the respondents felt that training would play a role in improving user behaviour. This compares to 13.1% of all respondents who had attended some form of email training in the twelve months. Of these, only 48.9% felt that the training was appropriate for their role. The data collected about the nature of the training events attended shows that the vast majority of training (76.9%) focused upon hardware or software training as migrating email systems to new providers. Up to 7.7% considered content management and 6.7% of training undertaken was part of an accredited course such as ECDL. There is no provision for training on the behavioural impacts of email usage.

The value of behaviour based training can be observed in work by Solingen *et al* (1998) who noted that behaviour focused training reduced interruptions by 30%. The same study concluded that senders need to be trained in reducing the load on recipients by targeting emails more effectively.

Behavioural training by DeMarco and Lister (1987) discussed the importance of considering how to communicate with others in order to reduce the potential for interruption. This is the opposite of the training provided by Solingen *et al* (1998) and closes the loop showing that training people to reduce their chances of being interrupted and training them how to reduce their chances of interrupting others has a net behavioural change that increases the consideration of others. Jackson

et al (2003) observed that 50% of emails sent could have been reduced to one line messages if appropriate behavioural training showed users how to do this, reducing the load on the recipient by better considering their needs. This is a further, positive example of the role that behaviour based email training can play.

Training would also have wider implications. Davenport (2005) noted that 51% of knowledge workers do not feel that they are in control of information flow, with 41% believing that their organisation does not provide assistance in dealing with the issue. In addition, Compeau (2007) observed that similar types of users only really understand 10 – 20% of the software tools available to them. Soucek and Moser (2010) focused specifically on the development of training interventions to help reduce the effects of overload. The training design included interventions to enhance understanding of email programme functions as well as personal management issues. Positive results were attributed to a training model that went beyond simple computer literacy, approaches that seem to dominate the training reported in the data. Alongside appropriate functional competence, personal management and better understanding of the effective use of communication media were key in the success of the programme.

Frazer (1996), Jackson *et al* (2003) and Jackson *et al* (2006) have all highlighted behavioural training as a key factor in enhancing email use. Huang *et al* (2011) identified that personal time management should be a central component in behaviour training.

Huang *et al* (2011) observed much higher levels of training satisfaction than those observed in the data. A total of 90% believed the training to be beneficial to their work compared with 48.9% in this study who felt that the training was appropriate for their role. Unfortunately, general findings for time management training are mixed and difficult to draw conclusions about but satisfaction linked with this type of training is high. As a result, users felt that the training would have a positive impact on their work patterns.

Training does have a role to play in the enhancement of email usage. The data that training tends to focus on technical competencies, particularly software and hardware training is present. Whilst technical training does have a role to play, training also needs to look at behavioural competencies in order to enhance usage. This helps to lend weight to the usefulness of the proposed conceptual framework which could form the backbone of training interventions, encouraging

users to consider the needs of others as well as their own time management both of which are training issues identified by previous authors. The third most commonly reported behaviour change is the desire for effective use including alternatives, construction and expectation of response, an issues explored by Denning (1982), Hiltz and Turoff (1985), and Whittaker and Sidner (1996) where poor use of email is cited as the key factor in reducing email effectiveness.

Increasing effectiveness in email usage goes hand in hand with reducing overload. One of the most important factors in achieving this is the correct selection of a communication medium. Kurtzburg *et al* (2006) suggested that employing a range of communication approaches to ensure that communication is undertaken in as effective manner as possible.

This suggests that taking steps to guide the selection or deselection of email is important. Literature shows that in different situations, alternative methods of communication became more appropriate. Young (1995) showed how email could be used more effectively than face-to-face communication where certain criteria existed. In the context of MRT this assertion is important in showing that traditionally rich methods of communication are not necessarily the best in a given situation.

The reverse is also true, there are situations where email would not be appropriate such as communicating sensitive information. There is no guidance on how to decide upon the appropriate alternative in a given situation. Again, this is where the proposed conceptual framework would provide guidance on this process. Email construction has been highlighted as a concern for email users both in the existing literature and in the results from this study. Sallis and Kassabova (2000) found that poor spelling, grammar, use of language and construction can cause damage to the communication process. Construction issues also include the use of 'netspeak' which can cause difficulties for the recipient if the message is not understood. However, Crystal (2001) found that the use of netspeak may actually help to foster better relationships if used in appropriate situations. This is a good example of where an improved relationship may enhance a less rich means of communication.

Email construction issues may be represented by a number of wasteful behaviours identified by users. Inappropriate content, aggressive tone, bullying, offensive

content, poorly written and hastily composed messages may be considered as email construction issues. In each of these cases a number of respondents identified them as drawbacks, especially poorly written emails. In the case of poorly written email training may be effective in guiding users to structure their emails to avoid some of the issues that may arise from misinterpretation which could be very damaging. This is one of the reasons why Daft and Lengel (1986) place email low on a scale of media richness.

The expectation of response, whether it is an unrealistic expectation on the part of the sender or the recipient failing to respond, is a behavioural issue that users feel should be addressed. Failure to respond was strongly identified as a drawback to email. Ingham (2003) identified that failure to respond is a symptom of email overload. If this issue has been identified as a drawback and subsequently as an area for behavioural improvement it suggests that attention is required. However, it must be considered whether the recipient failing to respond or are they not responding in a time frame that suits the sender? If senders identify failure to respond as an issue it may be that their expectations are not taking into account the needs of the recipient. Management of expectations is something that could be tackled through structured training.

Suggestions for behavioural change have identified three areas for consideration each lending weight to the usefulness of the proposed conceptual framework. Consideration of others is built into the proposed conceptual framework and would therefore address the concerns raised here. Combined with considering the needs of others there are then provisions to help manage own time to reduce load. The training attended by participants in the study has been ineffective and focused on areas that have brought little benefit to users. Targeted training that focuses on behavioural change, as well as technical competence, may be more effective as evidence from previous studies suggests. Training that is built around the proposed conceptual framework would contain both elements enabling more effective training.

5.5.3 Technological Barriers to effective usage

The barriers that systems present which prevent effective use of email systems are shown in Table 4.42. The main issues will be discussed to consider the impact that the barriers have on effective use of email systems.

The most commonly reported barriers are technical issues including address book and migration containing a number of themes that occur regularly. The most common technical issues are a lack of access to email services. This may be due to a physical lack of equipment such as not having a dedicated PC or the use of a system that is tied to a physical location with no webmail support for access offsite.

No physical access to email is a clear barrier to usage. Whilst not evident in many of the responses it was still present and was more prevalent amongst roles where remote working is common. Where resources are present, some users reported that access was tied to a single machine. This tended to be for Colleges using Outlook without the webmail option. For roles where access to a single machine for the majority of the day is possible such as desk based roles then this issue is not likely to be a barrier. For Academic roles, where the majority of time will be spent away from a single access point this will represent a significant barrier. In addition there were general technical barriers such as the time it takes to log into systems, outdated hardware and systems that were not user friendly. These barriers reduce the quality of the user experience and are likely to reduce the potential for users to engage with systems in the long term.

A major issue identified is the migration of systems, especially to outsourced provision. There is a move to outsource email provision as it is a way of reducing cost and improving access and reliability of email system. Harney (2005) identifies that email outsourcing can be much more cost effective than purchasing and maintaining systems in house. Despite concerns over privacy identified by Fitzloff and Kujubu (1999) it appears that outsourcing of this business critical tool is increasing in the FE sector as evidenced by the data. Other technical barriers identified included storage and attachment concerns, security issues and the effectiveness of filters applied to the system. Whilst these issues were not as commonly reported as those already discussed, they do represent a significant minority of the responses.

Storage of email and attachments has increased. The first Hotmail limit was 2Mb of data. This would allow for the storage of around 600 plain text email messages with no attachments. In comparison Gmail now allows users up to 2,5Gb of storage space, enough for over 1,000,000 plain text messages (Lambert et al 2005). With the addition of extra storage, it means that larger attachments can be

sent. However, there are often limits on the sizes of attachments permissible, for example, Gmail enables users to attach files up to 25mb in size (mail.google.com).

Responses from institutions involved in this study showed that inbox sizes varied from 1mb to an unlimited size. Some institutions had inbox sizes greater than one GB but the majority tended to be around 250mb. Inbox size management has been the focus of research by authors such as Whittaker and Sidner (1996) and Hurst (2007) who suggested that users who are experiencing issues with the capacity of their inbox and storage are not effectively using the system and are therefore more prone to overload.

There is no clear evidence to suggest whether the increasing number of messages was driving the need for more space or whether the provision of space is increasing the ability of users to leave messages in their email systems. Fisher *et al* (2006) showed that a significant proportion of increased mail box size can be attributed to using the email inbox as a storage and task management tool rather than simply as a means of sending and receiving information.

Collins (1996) and Seshadri and Cartenson (2007) identified the ability to maintain a written record of what was said was considered to be an important feature of email, this could be leading to increased retention of messages. Some respondents identified that maintaining a written record was an integral part of their role and as such, email served that purpose well. Others retained emails as a proof that they had told someone something, had been asked something, or simply as evidence that could be used at a future date. In these cases, this behaviour should be considered as inappropriate use of email systems.

Space may also become an issue where users are exchanging documents to enable collaboration for which there are more effective and appropriate tools available. A large document, working with a number of revisions, may have a number of instances within an inbox, taking up space. In addition to this, the sent messages box also takes up space within an individual's usage limits. Whilst the frustration of lack of storage and limitations on attachment sizes seem a legitimate issue it can be seen that excessive storage requirements may evidence poor email management strategies rather than restrictive usage policies. Training and behavioural management would work to negate the effects of this by teaching effective behaviour and management rather than simply expanding storage to enable compounding of ineffective behaviours.

Some users felt that the security of their confidential communication could not be assured, especially by outsourced systems. This is a legitimate in that organisations tend to claim ownership of email materials. If a message is personal and confidential then it should not be considered as such when using the organisation's email. Spinks *et al* (1999) and Cunningham and Greene (2002) suggest that emails should always be written as if anyone may see them, therefore email may not be suitable for communication that one would wish to keep private and secure.

Training and behavioural change can be employed to address user perceptions of security and privacy, removing the barrier by changing the content included in email. An example of this may be to conduct a face-to-face conversation rather than send an email. The proposed conceptual framework makes provision for this by asking the user if a written record is needed. If not, then there is little purpose in creating one. This would have the effect of improving privacy and security by removing sensitive information.

The final technical barrier to discuss is that of the effectiveness of spam filters, an issue identified. Email systems tend to have built in spam filters which put messages identified as spam into a separate folder. Despite this, some spam still gets into the main inbox and some legitimate messages can be found in the spam folder. The concern raised by respondents is that a number of spam messages still get through and some legitimate messages are lost. The Gmail system has been designed to filter out more than just spam and will put social messages and promotions into separate folders. Whilst these are default, others can be configured. Despite the imperfect nature of the technology in this case it is worth noting that users are able to add email addresses and domains to blocked lists which would prevent the messages from getting through. Undertaking this exercise would be enabled by appropriate training and behavioural development.

It is clear that whilst there are seemingly legitimate technological barriers which affect email usage, a number of these can be circumvented through the use of training and behavioural change. The clear example of where this is not feasible is lack of access of technology or systems that do not work as they should. Other than that, in the cases of storage, security and spam messages, behaviour can be adjusted to improve the use of systems. Despite having been asked for examples of technological barriers, a significant minority of those who provided responses to

this question identified user behaviour (15%), lack of training and competence (10.6%) and lack of personal interaction (9.7%) as barriers. These barriers are clearly not in place as a result of the technology itself. These issues have already been discussed but inclusion of these as answers to this question lends significant weight to the assertion that training and behavioural development can negate the most significant barriers to email usage.

Evidence has been generated throughout chapter 5.5 to answer research questions six and seven. In response to question five, users tend to believe that the use of email will continue in the future and that, on the whole, the increase will not have positive results. The main driving force behind the perception of continued increase is the cultural direction of the sector including the impact of mergers. Where large institutions have merged there is a greater perception that email will be used increasingly to maintain communication. In response to question 7, users have identified behavioural changes. An increase in consideration of recipients is valued by users as is the introduction of effective behavioural based training. Literature evidence suggests that this type of training has been effective and therefore may help to address issues experienced by users. Interestingly, when discussing technological barriers, behaviour continued to be cited as an issue in email use which further demonstrates the value of such interventions.

5.6 Analysis, discussion and justification of theoretical framework

Having explored the findings from both the survey and interview exercises it is necessary to consider how these findings impact upon the proposed conceptual framework developed in chapter 2.9 after exploration of the available literature. The results from primary research related to the conceptual framework components was analysed. Secondly, the justification for inclusion of the components will be revisited in light of the findings from all of the data and information gathered. All of the discussion in this chapter will contribute to answering research question eight which seeks to assess the relevance of the proposed framework components. This chapter will provide evidence to answer research question eight relating to the relevance of the proposed conceptual framework in light of the primary research undertaken.

Once analysed the results were used to review the proposed framework in chapter 2.9 and finalise the proposed conceptual framework along with providing

suggestions for the deployment of the conceptual framework within the Welsh FE sector.

Each component of the proposed conceptual framework will be explored to look at the component score from the questionnaire, the influence of role on the importance of the component and how valid the justification for inclusion of the component is in light of the results from both phases of the investigation. From this discussion a revised conceptual framework will be developed along with recommendations for deployment to different staff roles as well as training opportunities.

5.6.1 Analysis of 'Forwarding of Messages' component

This issue was not identified at length in the literature but it was identified that duplication of messages may lead to wastage which would increase overload for users. As a result, it is worth considering whether this component has a place in the proposed conceptual framework. This component was also not assessed in the ranking of the components but the results from the survey that illustrate the importance of this issue and justify its inclusion. This component is tightly linked to the wasteful behaviour of receiving the same message from multiple sources, essentially forwarding a message that has already been sent. Across all roles this issue was identified but less so by Business Support (see Table 4.42).

A total of 69.6% of senior managers, 71.6% of middle managers, 48% of business support and 67.4% of academics identified this as an issue causing waste. Across the whole response, 9.8% identified this as the most wasteful issue, the vast majority (67.7%) being from the academic role. These findings suggest that this component is relevant to all roles but may be less relevant to the business support role however, it is of significant relevance to the academic role. The following quotes highlight some of the issues identified by users:

Respondent 37: Sorting through duplicates and those which are not relevant to me.

Respondent 53: I receive lots of junk mail and unsolicited mail and duplicate/triplicate copies of the same email but from different people

Respondent 241: Receiving the same information from the admin assistant, HOP and head of school.

Respondent 331: As mentioned above, the same message being forwarded by different people.

Respondent 496: email received from line manager and then also received from other sources

Respondent 837: Multiple sources, messages forwarded by an Assistant director, then a director, then a secretary of the director.

Respondent 932: A message comes from CD me (HoLS) and to HoS. This is then sent to me (HoLS) by all 5 HoS and the DD resulting in me getting 8 e mails the same

These quotes represent a cross section of responses from the survey and demonstrate that the issue of forwarding messages that have already been sent is a concern related to wastage. Duplicated messages increase the number of message in a user's inbox which has been clearly linked to an increase in overload (Whittaker and Sidner 1996, Ingham 2003 and Fisher *et al* 2006).

A number of interview participants identified that duplicated messages forwarded on from more than one source generated waste. An example of this can be seen in an interview with a middle manager where, when discussing what wastes time the participant responded "I think if I am trying to clear out lots of spam emails and jokes that are doing then rounds then yeah, that would get on my nerves" The theme of repetition runs throughout the interview responses covering all roles and job types. This suggests that a solution is to encourage users to not forward on messages that have already been sent to people. This can be achieved by looking at the 'sent to' list at the top of the message. In addition, policies can be used to control the flow of forwarded circulars or jokes.

As a result of this discussion it is clear that this component has a role to play in the conceptual framework and that it may well be the first consideration that users should make when deciding whether or not to send an email.

5.6.2 Analysis of the 'Subjective Distance' component

The literature review discussed the importance of relationship in enhancing communication as shown by Fulk *et al* (1990) Contractor and Eisenberg (1990) and Lee (1991, 1994). Relationship can enhance less rich means of communication through the substitution of cues. It was considered that subjective distance and therefore relationship should be considered to be of high importance in the development of the conceptual framework.

Despite the high importance placed on subjective distance and relationship, it did not score as high as a number of other components when users considered the influence on these on their current email usage. At 6.27, the relationship that a user shares with a co-worker was the second lowest scoring element. A majority (85.2%) of survey respondents reported that they considered the needs of others before sending emails. The interview feedback also contained references to consideration of others but this tended to focus on ensuring that the messages that were sent were not misinterpreted rather than considering the load and needs of the recipient. Where this was evidenced the feedback suggested that where the interview participant knew someone they would consider whether it would be more effective to adjust the communication method.

Whilst this is linked to other components, research into good working relationships demonstrated that the ability to consider the needs of others based upon knowledge that is deeper than superficial social norms suggest good working relationships and hence low subjective distances between users.

It may be that the users believe that they are considering the needs of others but their primary driver in email usage is the desire to get their communication sent. This is borne out by the differences between average received messages and average maximum manageable perceived by users. Analysis and discussion of culture (chapter 5.2) found that all roles received more messages that they perceived to be manageable. This suggests that users are not being considerate of the needs of others over and above their own needs. The ways in which others are considered also helps to support this. The main ways reported are that users wish to avoid appearances of anything inappropriate and that the message is

interpreted correctly. Whilst there is some consideration of others here, not wishing to be misinterpreted also serves the needs of the sender. Messages may be written in such a way as to make it easy to understand but this does not manage load.

The second most common method relates to time management, principally of the sender who is aware of what they need to do and is helping to manage the expectations of others. There are no responses that relate to helping to reduce the load of those who are receiving messages. As a result of this, it can be assessed that users are not considering the needs of the recipient which may be due to not fully understanding their needs.

Despite this assessment, it is important to consider that users may be considerate of others but are driven to use email due to their own time constraints. A total of 65.6% of all respondents cited speed, reliability and ease as the main benefit of email. These users view email as a good way of getting their information communicated in a timely manner. This benefit does not take into consideration the needs of the recipient. These considerations may suggest why the score for this component is low. When asked to consider how useful the component may be in improving email efficiency in the future it scored 7.056 which is higher than before and no longer places the component second from bottom in terms of score. This shows a recognition of the role of relationship.

There is a definite need to consider the subjective distance between individuals as shown by the discussion on the influence of role culture and relationships. Where the role culture becomes increasingly embedded and the individual communicates within the culture, strengthening the bond then the ability to communicate effectively outside of their own role may be reduced. Further analysis of the interview feedback on where the strongest working relationships are and with whom participants sent emails revealed that, with the exception of middle managers, the vast majority of working relationships existed within the same role, especially for senior managers. Despite the majority of relationships being inward facing, a large majority of email is being sent to other roles. The existence of role culture within email communication has been statistically demonstrated illustrating that different roles have different relationships with email. With so much of the email traffic being sent to other roles there is a strong possibility that communication will be misunderstood.

The basis for this misunderstanding is shown by Lo and Lie (2008) who discussed that regardless of physical distance, where trust is low and equivocality is high then a rich means of communication should be used. High subjective distance equates to a low level of trust and therefore a greater chance of misunderstanding, particularly where communication is of a more complex nature.

As a result it is concluded that subjective distance, whilst currently not at the forefront of email user's minds when deciding whether to use email, should be included in the conceptual framework as the role of relationship in enhancing communication is clear. There needs to be particular emphasis on increasing the profile of subjective distance and a focus on encouraging greater development of relationship between roles. This relationship does not have to be necessarily a deep one but enough for the substitution of even basic experience for the cues found in rich communication (See literature review chapter 2.2).

5.6.3 Analysis of the 'Objective / Physical Distance' component

Over longer physical distances there is some scope to 'trade off' between the potential reach and the richness of the communication method. Young (1995) suggested that larger organisations or those over a number of locations cannot feasibly conduct face-to-face meetings on a regular basis, therefore less rich alternatives are acceptable.

Physical distance scored 7.434 on the current importance in the selection of email. When considering how important it may be in enhancing communication the score increase to 7.803 suggesting that greater importance is still placed on this component. This figure was slightly higher for senior managers suggesting that they make greater consideration of this when communicating. This may be due to increases in multi-campus institutions. At the time of commencing this research, there were few FE Colleges in Wales that were spread over a number of locations. It was considered that there was no strong reason to consider that reach is more important than effectiveness. Since the completion of the primary research component a number of mergers have taken place which has left institutions spread over a large geographical area.

This component scored highly as a current consideration in communication, especially for senior managers. When considering how consideration of the element may enhance email communication this score increases, again, more so for senior managers than other roles. Mergers have left senior management

groups in charge of larger institutions spread over a number of locations. There is a need to be able to communicate with all employees and email may well be seen as a viable method of achieving this. However, despite the obvious benefits, there are other issues to be considered.

It has been suggested that email may lead to management becoming less visible to employees. Email may lead to the illusion of successful communication with managers able to hide behind email messages for difficult decisions. There is a danger that senior managers may become further distanced from employees if email is seen as a preferable method of communication for multi campus institutions. The issue of multi-campus working is also highlighted by respondents when considering the future of email. A number of respondents felt that increases in email have been driven by cultural change, partly a result of merger and the need to function over different geographical locations. It can be considered that the benefit of being able to easily communicate over greater physical distances is more important than the potential effectiveness of the communication or the possible damage it may have on users in terms of symptoms of overload.

Trevino *et al* (1987) discussed that just because a large physical distance exists, there shouldn't necessarily be the assumption that a less rich means of communication is acceptable. In the interview feedback, all of the senior managers and some of the middle managers identified that they have cross campus responsibilities. In these cases there was evidence of two approaches to dealing with the distance.

Managers would make use of email to maintain regular contact between the campuses in order to maintain operational oversight. For example, a senior manager discussed that email is useful for dropping a quick note if something had been forgotten, this may be even truer if the recipient was on a different campus.

As well as using email, senior and middle managers discussed in this context all reported that they visit all locations, to attend meetings, maintain a presence and speak to others face-to-face. This shows a consideration that remote management may not be effective and that there is a recognition by managers, especially in merged institutions, that a physical presence is important. It cannot be seen whether this is the case for a non-merged institution example as the senior manager split time with another provider.

By ensuring presence in all locations, relationships can be developed and matters that are either not appropriate for email, by virtue of their nature or complexity, can be addressed. Through the use of the conceptual framework, managers of multisite colleges would be better placed to decide whether to send information by email or wait until they are physically present to address the matter. An interesting consideration on this point is that a manager who moves between sites may be considered to be physically distant from both regardless where they are. Clearly, when on one site they will be physically distant from the others but an issue complex enough to warrant waiting until they are located on the relevant site to enable rich communication is probably still complex enough to warrant rich communication if they are already located on the site.

For non-management roles, multi campus working is less likely. However, an example from the interviews shows how email can be effectively used for basic operational tasks across campuses. The participant in interview seven worked in a campus library. There are other campus libraries located across the group, routine queries were sent via email which enhanced the process and these communications were not complex. It could be argued that when subjective distance is low then physical distance is irrelevant meaning that where two individuals know one another it doesn't matter if they are close or far apart, email is effective.

When commenting on what constitutes a good working relationship a number of respondents discussed that face-to-face communication was essential as part of a balanced communication strategy, for example:

Respondent 173 - That you have some face to face contact. That you respect the person.

Respondent 179 - Face-to-face open communication

Respondent 280 - an even balance of face to face, email and telephone usage

Therefore it is important to encourage individuals to ensure that they balance the subjective and objective distance components. This is reliant on a number of the other factors that are included in the conceptual framework such as the complexity of the communication, comfort level of the participant and time constraints. It is for

this reason that physical distance cannot stand alone as a deciding factor in email use, it is contingent on other factors.

In conclusion, objective or physical distance should remain in the conceptual framework as it does serve a purpose. The existence of multi-campus Colleges has increased the potential for email use. A number of the managers interviewed reported that merger had increased their email load. There is still the imperative to consider the nature of the communication being undertaken contingent upon other factors.

5.6.4 Analysis of the 'Group or Individual Communication' component

A benefit of email is the ability to many users simultaneously. This came through strongly from the interviews with management roles. The increased reach can make email attractive even when it is not necessarily the most effective method (Stevens and McElhill 2000). Inclusion of this component in the conceptual framework was to help guide users away from email where it is appropriate to do so. Communication with a large group can be considered one of the biggest arguments for the use of email. However, the inclusion of the component is not a foregone conclusion.

Access to managed email groups is often restricted unless an individual user chooses to create their own group. Therefore, the component would only apply to a small number of users, normally those in management roles who would have access to managed mailing lists. This could complicate the deployment of the conceptual framework to all users. Feedback from the survey and interviews suggests that group emailing should be discouraged or made more sophisticated in order to ensure that emails are received by those for whom they are intended. There are also management issues related to message lists as lists may not be updated when users change jobs or roles. Excessive load, time wastage and blanket approaches were identified cumulatively by 21.5% of respondents as a drawback. Additionally, work related mails that are not relevant or are duplicated was identified by 40.8% when asked about the causes of waste. With the non-respondents removed, on the whole those who did not feel they wasted time, this accounted for 65.5% of the cited reasons for wasted time.

It is suitable to assume that individuals would very rarely receive a targeted email, for example where they are the only recipient that is not relevant to them at all. Irrelevant messages are most likely to be caused by blanket sending. Examples of

this can be seen in the following quotes from the survey in response to the question asking for an example of how time is wasted:

Respondent 4 - Not relevant to me, which I won't know until I read it.

Respondent 66 - Trying to work out what the sender actually wants. Sifting through relevant & irrelevant mail

Respondent 258 - reading emails that have little relevance to me

Response 480 - Reading and managing irrelevant mail

Response 515 - Emails that are not relevant to my job role.

Respondent 728 - reading and deleting irrelevant emails.

Respondent 816 - Receiving global e mails when people are too lazy to obtain correct mail listings

This is less relevant to the Business Support role who were the least likely to identify that time is wasted and therefore least likely to provide examples of how it is wasted.

These findings suggest that selection of email by virtue of group or individual communication is not necessarily the problem, it is whether group email should be used at all when the results clearly point towards it contributing up to 65.5% of reasons for wasted time when using email. This is confirmed when looking at inappropriate use where irrelevant messages were identified by a significant majority of respondents. 81.1% of all respondents identified this as inappropriate use of email. In addition, 32.4% of respondents identified this as the most important issue related to email use and provided examples as shown below:

Respondent 5 - Content not relevant to me. A general email to the whole department, but should be specific to a few.

Respondent 108 - Content that is not relevant to me- I get sent many emails asking me to attend meetings that are actually nothing to do with my role as the person sent a group email. This makes it difficult to know which meetings are relevant or not and then sometimes I miss a meeting that I thought was irrelevant but was actually important. On the other hand I sit (sometimes hours) in meetings that I have been emailed to attend but have nothing to do with me and so I waste hours of my time.

Respondent 495 - messages that are sent that do not concern me, for example open evenings and which sandwich filling would I like

Respondent 682 - Cross college messages, these are often not relevant to most staff.

Respondent 745 - Very often, global emails are sent to academic staff. As I am business support, I do not need to receive these emails. This happens very often. In the end, I just delete them before I read them properly which could result in me deleting messages that I am supposed to read.

Respondent 1002 - I receive emails sent out to all members of staff that are not relevant to my department, they are a blanket email.

These findings suggest that receipt of blanket emailing is causing waste, it is identified as a wasteful and inappropriate behaviour when selected from a list, users volunteered that it was a primary cause of their wastage and it was identified as the most pressing issue in email use by a significant minority of staff.

As a result of this, and the supposed control that is meant to exist over the use of group email, it has been decided to remove this component from the conceptual framework. There is a concern that it will either continue or further encourage users to send group emails which are significant causes of waste and overload. Survey results suggest that managed circulation is either not enforced, lacking in focus, inconsiderate of the participant, not sophisticated enough or is open to abuse. Burton (1994) did find that email was more effective than a number of other means when communicating with a group, but less so than face-to-face

communication. In a group situation there must be consideration made of subjective distance and that communication should be aimed at the person from whom the sender has the greatest subjective distance.

The decision to remove the component is despite the fact that the consideration of individual or group communication is considered of high importance in current use, 7.355 overall and this increases to 7.798 when looking at maximising email efficiency. In both cases, middle management score this component higher than other roles.

It can be argued that email is the most effective method of sharing information with a large group at the same time in order that everyone has access to the same information at the same time (O’Kane *et al* 2007). If a piece of information is so important that it needs to go to a large group at the same time then there is an argument that there may be equivocality due to the range of communication needs represented in a large group. In addition, information shared to a large group at the same time may contain information that is better delivered in person so as not to increase the perception of management distance. Instead of retaining the component in the conceptual framework it is suggested that it be included in training interventions and that practice be revised to either limit grouped email communication or to make it more sophisticated. Feedback from the interviews suggests that steps are being taken to limit all staff emailing and that the situation has improved, however, there is room for further improvement.

5.6.5 Analysis of the ‘Time Constraints – Present and Future and Immediacy of Response’ component

This chapter relates to two components, the consideration of present and future time constraints and the immediacy of response. These two components were proposed together as they have a direct impact on one another. The first facet of time pressure is current time pressure which was rated as important with 7.103 out of ten in terms of current impact. This increases to 7.389 when considering maximising email use in the future.

Middle managers were most likely to identify the time pressure that they are under as an important component. The second highest were senior managers followed by academics with business support least likely to consider this. The differences in the scores are small but a similar pattern has emerged here as can be seen in issues related to overload. Table 5.10 takes data from the discussion on role

influences and adds the scores for this component. According to the included rankings, where there are markers of overload there is also a difference in the consideration of time as an important component of the conceptual framework. In current practice, time pressure is statistically different between roles ($p=0.008$).

Table 5.10. Overload markers and time pressure as a conceptual framework component.

| | Cumulative Difference (actual vs. manageable) | Rank | Desire to change (yes) | Rank | Impact on current decision 'Time pressure' | | Usefulness in maximising email efficiency 'Time Pressure' | |
|------------------|---|------|------------------------|------|--|---|---|---|
| Senior Mangers | 13.62 | 2 | 53.3 | 2 | 7.138 | 2 | 7.300 | 2 |
| Middle Managers | 15.73 | 1 | 53.4 | 1 | 7.439 | 1 | 7.587 | 1 |
| Business Support | -2.91 | 4 | 22.0 | 4 | 7.010 | 4 | 7.179 | 4 |
| Academic | 3.07 | 3 | 38.6 | 3 | 7.050 | 3 | 7.475 | 3 |

These findings suggest that consideration of current time pressure is strongly related to evidence of overload especially the desire to change email usage and differences between actual and perceived maximum email loads. As this component is linked to overload then it also links to the components that have been discussed in relation to wastage. The main concern here is self-perpetuating load. Trevino *et al* (1987) and Beach and Mitchell (1997) suggested that where there is a lack of time to communicate using traditionally rich means of communication then the use of email is acceptable. As a result, email may be viewed as the most appropriate means of communicating when time is short.

However, with the amount of waste and markers of overload, it can be considered that an impact on available time is existing email overload. By only considering immediate convenience, a person who is overloaded and has reduced time may actually generate greater email load for others, and themselves, in the future. This is an interesting assertion as tradition thoughts on overload suggest that withdrawal from the system may occur (Ingham 2003). Overload may generate conditions in which users feel that they need to engage more with email and send more to fit communication into the time that remains. In order to mitigate this the

component must be taken in context with the clarification of complexity and sender / recipient behaviour, discussed later in this chapter. In doing this the user will be able to consider more than their own current time pressure, the second facet of time pressure.

Time pressure can also be considered based upon whether there will be time at a later point to address any issues that have arisen as a result of the email. This is the nature of asynchronous email communication as viewed by O'Kane *et al* (2007) and may be viewed as a benefit or drawback depending on personal circumstance. Importantly, the message will always reach the recipient at some point (Sillince *et al* 1998) what is not considered is whether there will be the time to deal with it when it arrives.

The user must therefore be more considerate of whether they have the time to deal with the repercussions of an email rather than the time pressure they are currently under. Therefore, the first facet should not be included in the conceptual framework. There is the possibility that overload may generate situations where time pressure results in greater overload therefore the argument about taking the time to communicate effectively now, even if it takes a little more time, is more relevant. In conclusion, the component needs to be refined to consider the issue of future time pressure rather than current time pressure. This will require further clarification in training interventions used to employ the conceptual framework in the workplace.

Immediacy of response was not directly assessed in the questionnaire as a component of the conceptual framework as it is necessarily very subjective. Feedback from the interview process revealed different opinions on the immediacy of email as a means of communication. There are examples, from each role, of interview participants responding that they like email because it is immediate. Senior managers in particular responded that they could send an email and they knew it would arrive instantly. In all cases, participants had to be probed to consider whether it was instant for them or for the respondent.

One interview highlighted a particular issue relating to immediacy of response and communication between roles. Interview three with a business support middle manager was conducted with an individual for whom email was the predominant method of communication. It was discussed that quick email responses were expected and received when communicating with others within the same role,

which, based upon earlier analysis is expected. However, the participant reported that the same immediate response could be expected regardless of role of the recipient even to the extent that academics would respond quickly even if teaching. It appears that there is lack of understanding of the nature of different roles in this example which could be damaging.

These findings were used to as a discussion point with interview four, a college Principal. The participant identified that academics were the most difficult to communicate due to the nature of their role and that it would be unfair to expect the same level of response as could be expected from someone who is desk based. This participant had come from an academic background initially and therefore had an understanding of the role. When the findings from Interview three were discussed the participant responded with the following:

“I would feel a bit disappointed. I think it probably does happen but that it is a totally unfair expectation. I am jumping to some conclusions here but I would think that would come from people who are in more functional roles, maybe who haven't been through the experience of being with a class and needing to do things for the next one. They may just simply not be aware but I am sure it isn't that simple. I find it disappointing, if that happens I would need to speak to people. I am not surprised that the behaviour you talk about goes on but I feel that people need to be more aware, more empathetic of what others do in their roles and the pressures on them”.

Whilst one example cannot be held as representative of the whole population it does highlight an issue that may be more prevalent, therefore warranting further investigation.

As it links to time pressure, this component is warranted within the conceptual framework. An academic precedence to show that email is useful where an immediate response is not required is present but there may be a need to include provision within training to encourage users to highlight messages as non-urgent in the same way as they mark messages as urgent. By marking them as non-urgent and not requiring an immediate response it will enable the respondent to better manage their time as well as enabling the sender to send a message to save time. Not requiring an immediate response is the mitigating factor that allows

for users to consider current time pressure. If an immediate response is required then the asynchronous nature of email limits the chance of that happening despite the perceptions that email is immediate.

5.6.6 Analysis of the 'Comfort Level' component

Ease and desire to use a communication method have been shown to be factors in the way in which an individual responds (Beach and Mitchell 1977). Issues relating to literacy as well as culture were discussed in the justification to include this component in the proposed conceptual framework. It was suggested that where people did not respond well to a communication method then noise may be introduced. This component scored much lower than many others in terms of current and future importance. A score of 6.201 was recorded for how important it is in current considerations and a score of 6.647 was recorded for how useful it would be in enhancing email communication. These are similar to those observed for other relationship based components in the conceptual framework. Senior managers were least likely to view this component as important which may contribute to misunderstandings in communication. From the questionnaire the prevalence of other communication methods was considered, evidenced in attitudes towards the drawbacks of email communication, elements of wastage and responses relating to good working relationships. In addition, whether or not participants liked using email was questioned directly. Justification will focus on how comfortable the recipient is with the use of email. Knowledge of recipient behaviour links to relationships and therefore further links to subjective distance. If there is no relationship present then there will be no basis upon which to decide whether or not the recipient is comfortable.

As a result, evidence of how the respondent will receive the message, the desire to impact heavily on the time management of others as well as drawbacks to email use all impact upon perceived comfort and the consideration that others make of this when using email. Areas that may suggest a lack of comfort can be evidenced by the prevalence of concern over misinterpretation and lack of cues combined with a desire not to lose face-to-face communication and a failure to respond. Each of these issues were identified as drawbacks to email.

Lack of human interaction, comprising a desire not to lose face-to-face communication, accounted for 25% of the examples of drawbacks provided. If users are concerned about losing face-to-face contact it suggests a lack of

comfort email. It is worth noting that not being comfortable with email may not be because the user does not wish to make use of it, rather that they are more comfortable with other means of communication. The quotes below illustrate this:

Respondent 71 - At times it can hinder face-to-face communication that would allow 'needed' discussion.

Respondent 89 - Loss of face-to-face or personal contact for simple communications. I.e. pick up the phone and ask or answer. I have sent emails to my colleague sitting next to me!

Respondent 118 - Lack of face-to-face communication and the amount of time they take each day. Senders expecting a reply immediately and managers expecting you to access them 24/7

Respondent 187 - nothing beats face-to-face communication

Respondent 291 - Not personal enough

Respondent 455 - We lose the opportunity for a face-to-face discussion on many occasions.

Concern over misunderstandings accounted for 18.1% of the identified drawbacks. The link between this and comfort may not be clear but if a user is worried that their email may be misconstrued then they are less likely to be comfortable when using email.

Survey respondents, in the majority, reported considering the needs of others when using email and examples of this were provided. This revealed less of the self-serving concerns that were present in the drawbacks to email use, see table 4.30 The greatest consideration of others was given in terms of appearances and interpretation of the message, the quotes below further illustrate this.

Respondent 14 - consider how it will be received

Respondent 69 - check through it make sure it's understandable and appropriate for the recipient

Respondent 114 - to avoid misunderstandings

Respondent 125 - Tone of e mails must be considered in relation to the receiver

Respondent 523 - The recipient needs to be able to understand the content so therefore the person/s needs to be considered to ensure that they are able to read it in the way the person sending it means I try to write email so as not to upset or offend the recipient

It is clear that there is an effort being made to take into account the needs of the recipients in terms of how well they will understand the communication, therefore their degree of comfort using email is being taken into account. The justification of this component links with the justification of the sender / recipient behaviour component. This will be considered before concluding on the relevance of both in the conceptual framework.

5.6.7 Analysis of the 'Sender / Recipient Behaviour' component

Sender recipient behaviour is very similar to comfort level in that one can often be judged by the other. If a user is judged to be uncomfortable using email then they may respond poorly and exhibit negative behaviour. Similarly, exhibition of negative behaviour can be used to judge a lack of comfort in email use.

This factor scored lower than a number of other factors suggested in the conceptual framework, 6.621 for the impact it has on current practice and 6.833 for enhancing future practice. Once again, senior managers are least likely to identify this as being an important factor.

Sender / recipient behaviour is a further example of a relationship factor which impacts on email use as knowledge of how someone responds to email is a relationship issue. Some interview respondents reported that their knowledge of others does impact upon their choice of communication method. This was broadly split into two approaches where it was present.

Firstly, participants talked about personal knowledge of the individual they are trying to communicate with. Where this was reported the participants were using previous knowledge to select the most appropriate communication method in that situation. The passage of questioning from Interview 5, with a middle manager, shown below illustrates this point.

Do the working relationships you have with people influence how you choose to communicate with them?

Yes, definitely. Sometimes face to face communication is much better. I find with email some people take it the wrong way sometimes, especially you are doing it really quickly and just jotting down a few words. They can be quite offended.

How about people you know well?

Then it is ok, people you know well are fine. Some people are very sensitive. I don't think email is the way to communicate with them.

Relationship components in the proposed model scored low when compared to other components, suggesting that it is not that important.

Oh no, it is very important. I know that some of my staff are very, they get offended very easily and they much prefer you to go and see them to explain something rather than put it in an email. Say I am going to cut a course, I wouldn't send a message via email to a tutor, I would go and see them and explain why because that is quite personal. I know some people, they use email all the time but it is not appropriate in some situations, not in that situation for example.

It is clear that the individual is considering the needs of the recipient based upon their knowledge of them, how they respond to different communication methods and their needs. Similar findings can be seen in Interview 11, a business support interview. The discussion is shown below.

Does the relationship you have with someone influence the method of communication you choose to use?

Very much so yes, over 12 years I have got to know a lot of people, through their way of working some people prefer emails, some people say, if you see them in the corridor, you just tell them and they accept it other people prefer to say phone me and they know they have done it, say thank you and move on. I have developed this knowledge over the past 12 years.

So you think about the relationship you have before you select your communication method?

Yes I do, some people you send emails to and get no response and you go and see them and say I sent you an email and they say, oh yes, I was too busy. So instead of sitting there composing an email I think that next time it would probably be easier just to go and speak to the person, take a piece of paper with me and say, right, is this what you want? They can sign it and I can carry on. If I am waiting for people to get back to me I could be waiting 2 or 3 days and then do you follow up with a phone call or another email? So it is something, everyone is different but over the last 12 years I have worked it out. Some of the senior management send emails left right and centre which is last thing I want. I know I have done it, I have spoken to you there is no need to follow up.

There is evidence here that despite role differences, the knowledge that can be employed in the selection of communication methods based upon how people have responded to email in the past, or may respond based on other factors is important..

The second approach evident is an appreciation of the different behaviours associated with communicating between roles. Interview 4, conducted with a senior manager, shows evidence of how knowledge of role differences can be used to predict the behaviour of recipients. An extract showing the answer to the question can be seen below.

Would you say that the relationship you have with someone influences the way you choose to communicate with them?

Most definitely!

In what way?

We are all aware that some people are more comfortable with email than others. Also, depending on people's roles, for example, classroom lecturers possibly would not be using email for quite some time in a day, they just can't get on to it. You need to adjust your method of communication, there is no point in me dropping a note to a classroom lecturer expecting a turnaround in 10 minutes because they won't see it, so there is that element in the nature of the work. Also I know some of the senior managers who much prefer to have a chat with that person to person or over the phone and very often that is a much more effective means of communication, getting responses or whatever than an email is. Sometimes you can just drown in them.

This extract shows that an understanding of the role itself can have an impact on predicting response behaviours and therefore modifying sender behaviours. This is not the case with all the interview participants that considered role in relation to sender / recipient behaviour. The extract below is from Interview 3, conducted with a middle manager from a business support role. In evidence is that the sender behaviour is based on a perception that the recipient will behave in the same way regardless of their role, in this case, academic.

If you emailed an academic member of staff would you have the same expectations in terms of response?

I would really, I normally don't have any issues at all, it depends if you are talking about an individual email to a particular person or a spammed email if you like to a group of people. You are likely to get a different level of response if people perceive it to be a multiple message which some people choose to ignore. Certainly when it is a direct message to an individual I would expect a good response.

Would it worry you perhaps if that person gave you a quick response when they were supposed to be teaching?

No it would not at all. The majority of people are fairly, no that wouldn't, no. It wouldn't worry me at all. If they chose to respond to me in a teaching time who am I to say that they are not supervising a class of people doing email.

This example illustrates lack of prediction related to how a role will behave. It may be based on personal experience but this is being used to predict the behaviour of the whole role. This assumption is based upon the response given in the same interview indicating that the participant is married to an academic. There is evidence that the behaviour of respondents, and therefore the sender, can be based on personal knowledge or an understanding of the role. Other factors relating to sender / recipient behaviour were observed in the survey.

Several authors have demonstrated that the management skills of the recipient are essential in managing load and therefore demonstrating positive email behaviour (Denning 1982, Hiltz and Turoff 1985, Whittaker and Sidner 1996, Whitaker *et al* 2006 and Hurst 2007). When proposing the conceptual framework it was suggested that the actions of the sender are equally important, if not more so, than the actions of the recipient, 85% of respondents to the survey felt that they

considered the needs of those they were sending emails to. Despite this, there is evidence that this is not the case.

One of the key issues related to email overload as identified by Ingham (2003) is that as individuals disengage with email they are likely to fail to respond.

Disengagement is caused by overload linked to the sender and recipient behaviour, the sender is not fully considering the needs of the recipient and the receiver is not managing their load.

Failure to respond to emails was identified as a drawback by 60 respondents. Where this has been identified as a drawback it is most likely as a result of behaviour observed by those respondents when using email. This should lead to a greater understanding of recipient behaviour and they should modify their behaviour. Failure to respond to emails is a behaviour associated with disengaging from the system as identified by Ingham (2003). Despite the majority of respondents reporting considering the needs of others, this is not translating into reduced load or wastage. Despite this there is some evidence of the practice that this component would encourage, demonstrated in the following quotes from the survey:

Respondent 103 - I manage my expectation of response times to recipients based on their past performance

Respondent 116 - Consider the speed of the response

Respondent 138 - I always try and contact the recipient first, and make sure I can't find the information etc. out myself first. Many people e-mail first, instead of thinking.

Related drawbacks accounted for 39.5% of all examples, of which excessive load is identified 8.1% of the time, time wastage 7.6% of the time, blanket emailing 5.7% of the time and issues related to damaging messages 18.1% of the time. Damaging messages are those perceived to be aggressive, bullying or offensive. These drawbacks suggest that respondents identify that their needs are not being taken into account full and therefore there a lack of understanding relating to send and recipient behaviour.

The survey results show that respondents feel that sent and received messages should be similar in number. When questioned about the numbers of messages sent and received that respondents felt were manageable the results correlated at a significant level ($R=0.736$, $n=848$ $P=0.000$) yet there is an imbalance between actual sent and received messages with cumulative averages illustrating 18 sent and 26 received messages on average. There is a difference between roles suggesting that load may be generated between roles, again due to a lack of understanding regarding sender and recipient behaviour. Time wastage also point towards a lack of understanding between senders and recipients. 40.8% reported receiving irrelevant or duplicated messages suggesting that sender behaviour seems to relate more to sending out messages regardless of their impact. This is despite the 85% who reported considering the needs of others.

As previously discussed, the greatest consideration made of others is the interpretation of the content, whilst this is important it doesn't actually consider how the recipient has behaved in the past. Considering the content may well ease the comfort of the recipient if email is used but it doesn't ease the load. A minority of 15.6% of respondents reported considered the time of others, whether the messages was actually needed and the need to manage one's own expectations regarding responses. It would be unfair to assume that senders deliberately ignore the needs of others, adding to their load. However, it cannot be ignored that sender behaviour and recipient behaviour cannot be fully separated as they are the same set of respondents. If 85% of respondents are considering other people's needs and yet there is still overload then it is clear they are only considering part of the need.

Respondents appear to be considering the comfort of the recipients quite well. Whether this is due to a desire to avoid misinterpretation for the benefit of the recipient or for themselves is not clear. Sender and recipient behaviour is clearly not being fully considered. The users who are overloaded and have concerns over wasting time with irrelevant emails are the same users who are generating this load due to not considering others. It is not considered that this behaviour is done in a malicious way. The nature of the responses in the survey and some of the contradictions present seems to suggest a lack of understanding regarding the consideration of the needs of others. As a result the components of comfort and

sender / recipient behaviour do not really need to sit as separate issues within the conceptual framework.

Whilst they might appear different, comfort levels and behaviour are essential two sides of the same issues, therefore the components should be combined and modified to encourage the user to ask the question 'how will the recipient react to this?' This combines the issues related to content as well as load. The sender can then consider how the respondent will react to the content and how they will react to the email itself regarding non-response or overload. This will need to be supported by information in the training exercises.

5.6.8 Analysis of the 'Clarification of Complexity' components

Clarification of complexity components will be handled as one where in the original conceptual framework there were two stages of clarification. It was proposed that clarification of complexity be included in the first stage of the conceptual framework to encourage users to think about whether their email will result in a need for the recipient to ask further questions. This component scored the lowest in terms of the value placed on it in current practice (5.567). This pattern is continued when considering how it may enhance practice (6.602). It was suggested that this component links to comfort levels as someone who is uncomfortable with a communication method may fail to provide the appropriate level of clarification. The component relating to the comfort of others scored poorly (6.201) when considering its usefulness in current practice. This increased when considering how useful it may be in increasing effectiveness in the future (6.647).

Deciding upon the complexity of the information links to relationship. Members of different cultural groups will have slightly different use of language and approaches to communicating. As differences have been observed between roles and the way they use email then there will be difficulties in communicating between roles. It was discussed that the more integrated an individual gets within their own role, the more integrated into the culture they become. As a result an email may be generated that makes sense to the sender but presents difficulties in understanding for the recipient.

When questioned about which role interview participants found most difficult to communicate with, all recipients reported a different role to their own. This supports the idea that stronger relationships enhance the quality of communication within roles. During the analysis of working relationships, the issue of

communicating outside of a role when the majority of the relationship exists within the role, the level of trust is low and therefore the potential for equivocality is high was highlighted.

Where relationship scores are low between roles and the instances of communication are fewer, emails are more likely either to be misunderstood or require clarification based on cultural or subjective distance.

Based upon this, academics should have the most difficulty communicating with senior managers via email, subjective distance is greatest and therefore there is a greater chance that where misunderstandings occur, clarification will be needed. All academics interviewed felt that senior managers were hardest to communicate with and three of the four senior managers interviewed felt that academics were the most difficult to communicate with. The fourth had little contact with academics at all.

Communication between roles can be considered as a means of generating complexity within a message even if the message would not be considered complex within the same role. This was highlighted by interview 15, conducted with an IT technician, where the issue of ensuring messages are sufficiently detailed to suit the recipient is required to cut down on future work load. An excerpt from that interview is shown below.

What consideration do you make of others when sending email?

Well, because what I send it normally on the subject of IT issues I need to make sure that what I send can be understood. I am aware that not everyone knows the ins and out of IT systems so I make sure that when I send instructions that they are straight forward and simple to follow. I also do my best not to send things that are overly complex, if I have to do something complicated I will do it face to face rather than by an email.

This answer illustrates that the user would change their communication method if they felt that the message would be too complex for an email highlighting a good understanding that users in other jobs would not have the same understanding as them. It may be that the issue of complexity extends beyond the role level and into the job level. Whilst no significant difference was shown at the job level analysis did not focus on content complexity.

Misunderstanding of a message may lead to a requirement to clarify the content. Misunderstanding and damaging messages were identified by a total of 24.8% of respondents as a drawback to email and the desire not to be misunderstood was identified by 35.7% of respondents when considering the needs of others. By considering whether or not a user will need to respond to ask a further query a number of the issues relating to misunderstanding may be reduced. There is evidence that users appreciate that others may not fully understand their messages and there is further evidence that this leads them to select a different approach to communicating, examples of this can be seen in the following survey quotes.

Respondent 44 - When several emails are passed back and fore trying to establish what someone actually meant, or because the first email didn't contain all of the information required.

Respondent 63 - Reading email that is not intended for me and reading email that is written in jargon, making me delve into research to work out what the sender is asking of me.

Respondent 66 - Trying to work out what the sender actually wants.

Respondent 6 - Sometimes face to face communication is much more appropriate

Respondent 40 - Do they need this email is first consideration. Is email most appropriate vehicle for communication this message is second?

Respondent 251 - Phone calls can often be quicker

The comfort level of the recipient is a more difficult component to quantify. This issue links closely to the relationship that between the sender and recipient. In order to predict the level with which the recipient will be comfortable with the email, either as a means of communication or in the interpretation of the content, it is important to consider the relationship. Relationship would allow the sender to predict the response of the recipient to the email. If a user is less comfortable with email use then there is the potential for misinterpretation of the content. As this component appears as part of the secondary decision making process, once the initial communication method decision has been made, an understanding of how the recipient may respond to other methods of communication is also important. A

good example of this can be seen in those who see email as a good opportunity to retain a written record of communication. Whilst this will be discussed as a component on its own it shows how a recipient may respond to a non-written communication method in this context.

Users who value having a written record may have a reduced comfort level with telephone or face-to-face communication as there is no written record attached. They may then request written confirmation which would increase the work load for the sender. The benefit of a written record was identified by 15.7% of respondents which is a significant minority. However, as with other relationship focused components of the conceptual framework, users seem to place lower value on it compared to other components. As with other relationship components it is considered that this most likely related to a poor perception in how good working relationships are and how well users actually consider the needs of others. These issues have been discussed at length when looking at other relationship based components. Evidence of the impact of this issues can be seen in Plantronics (2013) where 72% of respondents had to follow up an unintelligible email with a phone call. This may be due to poor generation of the message or could be strongly linked to a lack of consideration of what the recipient needs.

5.6.9 Analysis of the 'Suitability of Content' component

This component was originally included in the conceptual framework as a number of authors highlighted the issue that email may not be the most appropriate method of communicating some information. King and Xia (1997) identified that users did not believe that email was the right means of communication for personal information. Additionally, Kurtzburg *et al* (2006) considered that it was not appropriate for generating feedback, especially on sensitive issues and may then leave easily accessible records that could be damaging in the future. A major reason for the unsuitability of the method for communicating this type of information is discussed by Sussman and Sproull (1999) who concluded that when using email, users tended not to alter their communication to make it more palatable to the recipient. This may result in uncensored feelings or opinions being communicated.

The final reason for the inclusion of this component was the concern over the communication of bullying, aggressive or offensive materials that can be considered unsuitable, not just for email but to be communicated in any context. In

current practice, this component was rated quite highly (7.771) based on its impact on current practice. Unlike a number of other components, its importance for enhancing email use was lower (7.609). Despite this there is compelling evidence in the responses over concerns relating to the suitability of content. An average of 16.6% of respondents reported receiving messages that were inappropriate. 32.9% reported receiving messages that had an aggressive tone, 11.1% reported being bullied via email. 10.3% reported receiving messages that contained offensive content.

In addition to the overall statistics, there are differences in the perceptions of these by role as shown in table 5.11. In terms of inappropriate content senior and middle managers perceive this more so than other roles. Again, these roles are more likely to perceive aggressive tones in email and are more likely to report having received offensive material (contrary to Lim and Teo 2009).

In these cases it is worth noting that the data cannot allow for the differentiation between events experienced whilst employed in the specific role compared to time spent in others roles. It may be that higher levels of perception are present as a result of increased time served. The data does not allow for that differentiation.

Middle managers and academics are most likely to report that they have been bullied by email which does not follow the same pattern identified for the others suggesting that bullying occurs in specific events rather than being accumulated over time. Further research would be required to fully investigate this. However, the jobsite reed.co.uk (www.reed.co.uk) showed that managers are more likely to be targeted by bullying emails but it fails to identify exactly why this is the case.

Table 5.11. Inappropriate use by role

| Response | Senior Management | Middle Management | Business Support | Academics |
|-----------------------------|-------------------|-------------------|------------------|-----------|
| Inappropriate content | 30.4% | 29.6% | 12.5% | 13.7% |
| Aggressive tone | 56.5% | 53.7% | 24.6% | 29.1% |
| Bullying | 10.9% | 19.1% | 4.0% | 13.1% |
| Content you found offensive | 13% | 16% | 6.5% | 10.6% |

These findings clearly show that there is concern over the inappropriate use of email. This component has been included in the second stage of the conceptual framework as it is not just email that may be inappropriate for the subject being communicated. In the context of a conceptual framework designed to promote informed decisions about using email it is important to justify its inclusion as way of

achieving this. Inappropriate behaviours were investigated alongside wasteful behaviours as they may cause damage and therefore cause wastage, reducing efficacy.

Users were asked to provide specific examples of where these issues have affected them. These will be used to illustrate how consideration of suitability of content is important when considering whether to use email or not. Each example of inappropriate use will be dealt with separately when exploring the issues highlighted by users.

Inappropriate content:

Respondent 1 - I have received messages containing private information that should have been communicated face to face in order to ensure no misunderstandings. This related to a disciplinary matter.

Respondents 20 - An email from Colleague A outlining why he didn't like Colleague B...this graduated to one line emails commenting on everything that Colleague B said and why they were wrong.

Respondent 89 - Inappropriate jokes sent by email circulated to a wide audience

Respondent 167 - Disciplinary messages sent to everyone in general rather than the individual at fault (tarring with the same brush).

Respondent 221 - A high level manager involved me as a go-between between himself and another organisation without explaining to me what he was doing.

Respondent 505 - Inappropriate emails would concern me the most. Receiving unwanted Jokes/pictures in the past at work resulted in a devastating investigation/disciplinary that had far reaching consequences for colleagues.

Respondent 536 - Emails which are sent potentially to be used 'in evidence against' at some point in the future.

These quotes illustrate a range of behaviours that users considered to be inappropriate use of email. These do not specifically relate to bullying, aggression or offensive messages but instead show a range of inappropriate issues. Evidence demonstrates the use of email for sending disciplinary information, an activity users feel is not appropriate for email. This is clearly an inappropriate use of the

medium for the communication of sensitive information, as discussed by Sussman and Sproull (1999) and Kurtsburg *et al* (2006).

The sending of jokes and funny pictures has also been highlighted as an inappropriate use of email. The potential for damage has been highlighted especially in the situation outlined by Respondent 505. This issue links to the knowledge of how a respondents would respond to an email and considering their needs. Would the respondent find the joke an amusing interlude in the working day or would they find it annoying or potentially take offense. A good working relationship would inform this decision on the part of the sender. Finally, the use of email either as a tool to influence others or to discuss them behind their back is also cited. Both of these can have a significant damaging effect on both the users involved and the organisation as a whole.

Bullying and Aggressive Tone:

These two issues will be considered together as the analysis revealed that the terms are often used interchangeably and the issues identified can often be considered as belonging to both. This issue has emerged from the research and was not initially considered in depth during the literature review.

Respondent 38 - I have asked a reasonable question but received a very short and abrasive reply; being told to do something without reasonable explanation; despite the fact that face to face communication is encouraged in the college statement many staff send emails rather than speak to people about issues

Respondent 85 - bullying - Getting lecturers to work well over the contractual hours of 24 hours contact without consulting the lecturer and they implying that if you do not do this you would not have job

Respondent 104 -Aggressive tone: Sometimes I feel colleagues use e-mail as a way of expressing their frustration, this can especially be the case when they do not feel comfortable expressing themselves face to face and I believe e-mail only makes this worse sometimes.

Respondent 124 -Quite often messages from superiors can appear terse.

Respondent 126 - Aggressive or bullying e-mails which may be sent by managers virtually demanding a response (especially when marked as High Priority) and evoking a stressed response because the sheer act of opening the e-mail has implicated you in being obliged to take whatever action is required

Respondent 255 - missing from above is hectoring the person, short of bullying but same demands in different ways putting undue pressure on a person.

Respondent 325 - It is too easy for management to put a demanding and aggressive tone on an email but they would have to be more polite and considerate in person.

Respondent 435 - An aggressive email - inappropriate in both content and tone - was sent by my line manager, based on inaccurate facts. This gave rise to a confrontational meeting, which was unnecessary in the first instance.

These quotes illustrate that when considering the appropriateness of email content one must also consider whether the medium is being used appropriately even if the content is appropriate. Aggressive and bullying emails will damage relationships between users. There are links here with other factors such as the likelihood of further clarification being required.

An email that may initially appear aggressive could be delivered face-to-face as it would allow discussion and context to be added to the comments. As such, the content does become unsuitable for email, as Sussman and Sproull (1999) pointed out, the same content delivered by email may be done so in a less considerate manner. As a result of this, considering the content of the message and whether it can be delivered suitably by email is very important.

The final unsuitable use revolves around the delivery of offensive material. Although 10.3% of users reported receiving messages that they found offensive only two chose to report the issue as the one that was most important to them. One user simply reported that this was the most concerning to them whilst the other reported that they found a lack of civility and tone as a way in which offense can be caused. What is clear from the feedback on these issues is that it is not just the content of the messages that may not be appropriate for communication via email. The way in which the message is worded or interpreted by the recipient may render the communication method inappropriate. Based on these findings it is

274

considered that this factor should certainly remain within the conceptual framework but should be moved to the first stage of selection, cutting down on the potential for offensive, bullying or aggressive messages by encouraging the sender to think about the nature of their message. The component should also be reworded to place greater emphasis on the consideration of the content, not just in terms of the broad area of the communication but also the way it is written and how it may be interpreted.

This broadens the scope of the component. It was included to encourage users to decide whether the communication method they had initially selected was appropriate for the communication of sensitive materials or other matters unsuitable for that method. However, the real drive behind the component is whether the content is suitable for email. Results have shown that appropriateness of the medium is affected by the way that users interact with it. Email has been shown to carry messages that are received in a way that may have been different had the message been communicated either face-to-face or on the phone. By moving the component to the first stage and changing the emphasis slightly it will enable the user to consider both whether the content is appropriate for the email at a fundamental level but also to consider whether the way in which email may make it appear could be inappropriate. A final consideration for deciding whether email is appropriate is the nature of the relationship that the sender has with the recipient. For example, during interview five, conducted with a middle manager, the issue of relationship and the suitability of email is discussed. An excerpt is shown below:

Do the working relationships you have with people influence how you choose to communicate with them?

Yes, definitely. Sometimes face to face communication is much better. I find with email some people take it the wrong way sometimes, especially you are doing it really quickly and just jotting down a few words. They can be quite offended.

How about people you know well?

Then it is ok, people you know well are fine. Some people are very sensitive. I don't think email is the way to communicate with them.

Relationship components in the proposed model scored low when compared to other components, suggesting that it is not that important.

Oh no, it is very important. I know that some of my staff are very, they get offended very easily and they much prefer you to go and see them to explain something rather than put it in an email. Say I am going to cut a course, I wouldn't send a message via email to a tutor, I would go and see them and explain why because that is quite personal. I know some people, they use email all the time but it is not appropriate in some situations, not in that situation for example.

This excerpt demonstrates that the manager uses knowledge based on working relationships to decide whether the content of an email is suitable for an individual. Whilst some rules can be applied in a blanket fashion such as those suggested by Kurtsburg *et al* (2006), a more tailored approach also needs to be taken. This can only be achieved where good working relationships exist. The analysis of good working relationships suggests that cross cultural use of email may give rise to misunderstandings and therefore render email an inappropriate method of achieving the aim of the communication. Examples of this can be seen in some of the quotes included above where managers have used email in a way that has been deemed inappropriate by others. In addition to the ideas explored it is suggested that the use of email does not enhance communication where the message is critical or is sent as part of a collaborative exercise (Plantronics 2013).

5.6.10 Analysis of the 'Written Record' component

The final component for analysis relates to the need to keep a written record. Several authors such as Collins (1996) and Seshadri and Cartenson (2007) identified that email can be used effectively as a means of maintaining a written record of communication. In terms of the importance of this component, it scored the highest in both influence on current practice (8.160) and how useful it could be in enhancing email usage in the future (8.141). It is important to outline the context in which the email systems operate in order to fully understand the issues surrounding using email to generate a written record. Email policies act to safeguard standards and protect data integrity to ensure that value is not lost (JISC 2005). As a result, organisations claim ownership and the right to search all email that passes through their systems. Whilst these are contentious issues (see Tavakolian 1993, Miller 1999, Eisenschitz 2002 and Oliver 2002), the retention of email is a regular occurrence. As emails can be used in such a way there is an argument to suggest that they are retained to enable the content to be used to

either to prove oneself or to disprove the actions of others. This context will heavily impact upon the perception of whether or not retaining emails for their use as a written record is motivated purely by benign reasons or as a means to protect the user.

When asked to identify the benefits of email, 16.5% of respondents identify that having a record of messages or the ability to record and reference previous messages are benefits of email systems. Each role identified this benefit to a differing degree. Academics were most likely to identify this (40.3% of those who identified the benefit). A similar pattern can be observed with the Business Support role at 36.5%. It is important to note that these two roles represent the largest response rates from across the sample group. When each role is isolated, the pattern changes significantly. 4.4% of Senior Managers identified this benefit as did 21.6% of middle managers. 18.1% of Business Support and 13% of Academics also identified this benefit. This suggests that Business Support staff are most likely to identify the written record as a benefit. Some of the reasons for this are shown in the quotes below.

Respondent 17 - Quick communication that can be referred back to for reference

Respondent 49 - Written confirmation of what is required, more complete instructions that can be referred to when needed.

Respondent 80 - A good audit trail.

Respondent 94 - traceability as time sent is recorded.

Respondent 110 - They provide a timed written record of the exchange of information.

Respondent 202 - Copy of communications kept.

Respondent 205 - Evidence of a conversation.

Respondent 227 - Permanent record of queries sent

Respondent 432 - Knowing you have sent a message to someone - i.e. proof in your sent items.

Respondent 576 - You have evidence of responses to work related issues/information

Respondent 738 - a written record of the communication.

Whilst these types of responses are not exclusive to the business support role there is clear evidence that the need for something to refer back to or some kind of proof drives the motivation to view a record as a benefit. Indeed, in a number of responses to whether users wish to change their email usage it was noted that having an audit trail was essential to their job role and that email provides it effectively. The majority of respondents demonstrating this view were business support.

When considering whether users are considerate of the needs of others there are those who consider that their need to generate audit trails is more important than the needs of those who are receiving the emails. These individuals generally answered no to the question about whether they consider the needs of others before sending emails. There does appear to be evidence to support the earlier theorists' work that the recordable nature of email can be a benefit in some situations such as where an audit trail is required. There is also evidence in the data set and from anecdotal evidence provided by users during the research to suggest that the recordable nature of email can be used against other users.

When questioned, several respondents reported that the permanence of email is a drawback. Once the email has been sent then there is a permanent trail that can be followed and potentially used against users. There is the issue of accidentally sending confidential information to the wrong person. A lack of consideration especially around the audit trail is also identified as a drawback. Users raise concerns over the drawbacks presented by users who demand emails in order to generate audit trails for their purposes. This was also evident in some interviews. Some users reported conducting discussion only to be asked to send a follow up email to confirm them. This is considered as an obvious audit trail generating exercise. It appears that the audit trail benefits as identified by Collins (1996) and Seshadri and Cartenson (2007) and within this study are driven by the sender rather than the needs of the recipient. There is evidence that certain roles, business support in particular, value the generation a written record via email but there are others who view this as a drawback or a source of waste.

Some emails appear to be sent solely to generate evidence raising concern that recorded emails may be used against individuals at a later date. Ideas such as the email sent to cover ones back or sent to deliberately get people into trouble suggest that the recorded nature of email is being exploited rather than used

effectively. The component still has a place in the suggested conceptual framework but further education on its use needs to be carried out. Jobs and roles where a written record via email is really an essential exercise need to be identified and this information disseminated. Emails sent solely to generate evidence that someone has been asked to do something or to get others into trouble need to be discouraged strongly.

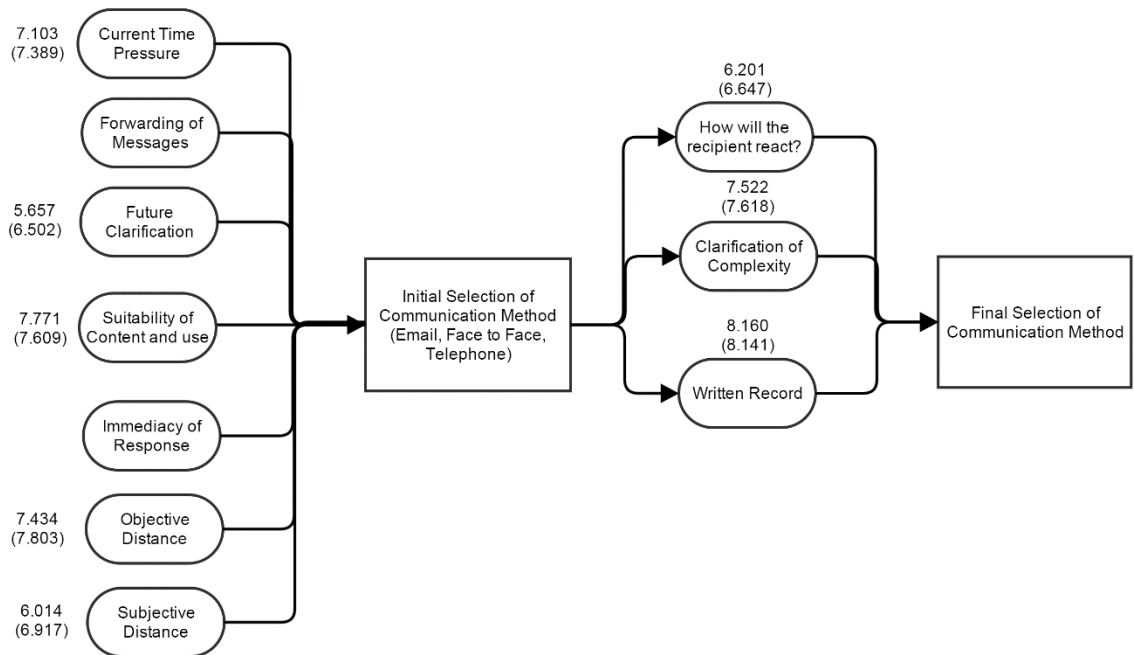
5.6.11 Theoretical framework development based upon discussion

Throughout the discussion of each component it has become clear that the relationship that users have with one another does strongly impact upon components presented and the foundations upon which they are built. Of the ten components that remain after analysis, seven are clearly strongly influenced by relationship.

It has been suggested that communication is a foundation in the generation of good working relationships as it helps to generate trust. However, it has also been shown that good working relationships enable behaviours that maximise the performance of email communication.

Based upon the discussion undertaken, the revised conceptual framework is shown in figure 5.12 below. The initial revision shows only the changes made by removing the components identified for removal and the movement of others to different stages of consideration. For each component the top figure represents the value to current practice whilst the figures in brackets represent how useful each would be in improving future practice.

Figure 5.12. Revision of the multidimensional conceptual framework

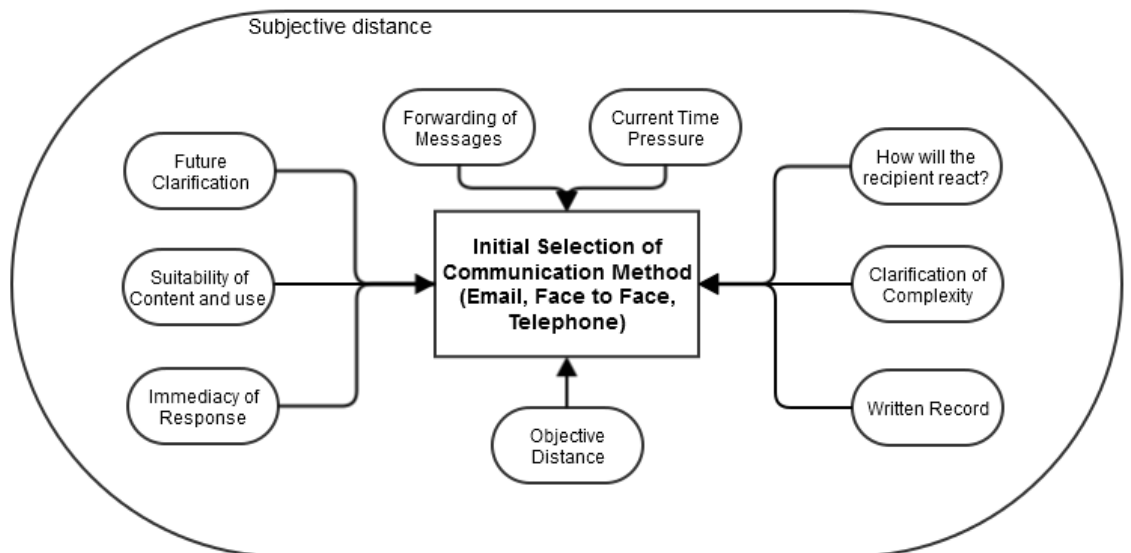


Reflecting on these changes demonstrates that the three components left in the second stage may sit more effectively within the first stage. It was initially asserted that the multi-stage approach used in the conceptual framework was a factor that made it unique. When considering whether email is the most effective means of communicating information it is noted that more than one stage may be a complicating factor.

It has also been noted throughout the discussion that users do not tend to view relationship components to be as important in their email practice as other more, superficial practical issues. However, as it has been shown that relationship impacts upon almost all others factors combined with the contradictions exposed when looking at the responses gathered.

The conceptual framework has been revised to reduce the number of stages and to place relationship at the forefront sitting around all other considerations. Each of the conceptual framework components is affected by how well the sender knows the recipient. The final revised conceptual framework is shown in Figure 5.13 below. A good relationship as defined in the chapter considering working relationships will impact positively on how users interpret each of the components and should help in the reduction of wastage identified throughout the research.

Figure 5.13. Final revision of the multidimensional conceptual framework



5.6.12 Overall Conceptual framework Justification

Having justified the inclusion of the conceptual framework components, this chapter will seek to justify the conceptual framework in its entirety. Justification will be provided as to why the conceptual framework should be used to enhance email communication and the ways in which it may be used. Issues such as benefits and drawbacks of email, evidence of overload and wastage, failures in current training programmes and continued growth will be explored to justify the conceptual framework. Early benefits of email as identified by Bengston (1980) focused on providing an improved communication service for organisations by increasing speed and reducing cost. These benefits were also recognised by Russell and Cohen (1997), Holliday (1999) and Yu and Yu (2001). In addition, flexibility and wide reach were identified as benefits. The results of this study do not support earlier assertions at all. Since the identification of these benefits, the use of email has increased exponentially and the scope of the facility has changed from one that acted as a means of electronically placing a memo on the recipient's desk to a system that can transfer large documents, pictures, videos and other files as well as written communication. Despite examples from large organisations such as Vodafone, Phones 4 U and Ferrari who have cut back on the use of email due to cost implications in terms of staff time, reporting of the identified benefits persist despite the weight of evidence against them.

The benefits of speed, reliability and ease were identified by 65.6% of respondents. Importantly, these were reported in an open ended question rather

than by selecting options for a list. Cost effectiveness was not identified as a significant benefit in terms of the use of email. The initial drawbacks of email as identified by Denning (1982) and Young (1995) Miller (1999) were that it would cause an increase in communication load for workers, reduce the face-to-face interactions between individuals and increase the potential for recordable damaging communication to take place. These drawbacks were strongly identified by respondents in this study. The implications of the results from the investigation into the benefits and drawbacks demonstrate that opinions have not changed over the years despite advances in the capabilities of the systems and increases in identified load. The similarity suggests that education programmes have been ineffective or that the convenience of sending emails is being seen as more important than the implications it has on users.

The lack of change illustrates a stagnation in the approach to email which can be addressed by employing the approaches suggested in the conceptual framework. The conceptual framework challenges the long held beliefs in the benefits of email, especially those related to speed and ease, whilst ensuring that it still used in the most appropriate situation which would enable those benefits to be realised.

The conceptual framework also helps to address the drawbacks by increasing personal communication where it is most appropriate and reducing the potential for users to transmit damaging or misunderstood messages by requiring them to consider the appropriateness of the information being sent by email as well as the potential for the recipient to require clarification.

In addition to addressing the issue of benefits and drawbacks, the levels of overload and wastage evident in the study also lend weight to the value of a conceptual framework which aims to reduce wastage and therefore reduce total load and overload.

The newly defined variable relating to perceived maximum sent and received messages has helped to identify that in both sent and received message loads, users are on average, sending and receiving more than they perceive that they can effectively manage. This is further evidenced in the feedback from interview participants who discussed that without the ability to access and work on emails outside of contracted hours they would not be able to manage their load.

A largest majority of respondents felt that sent (84.1%) and received (87.4%) loads had increased in recent years. Very few respondents felt that loads had decreased. Despite increases in load there is no evidence to suggest that the capacity to deal with these loads had increased which is suggestive of an increase in overload. Based on these findings, 36.4% of all respondents wished to change their email usage. Senior and Middle Managers were more likely to want to change their email usage, rising to 53.3% and 53.4% respectively. Business Support were least likely to want to change their usage with only 22% wishing to do so. Although the figures are not high they do represent a significant minority of the respondents.

In addition to actual load, wastage is also a component that has been identified as potentially contributing to overload. 59.5% of all users felt that they were wasting time when using email. Of the 59.5%, an average of 18.69% of all time spent using email is wasted. Based upon average wages for the sector, this represents an estimated £4.4 Million in wasted time per year when using email. In addition to highlighting the cost of waste, this also demonstrates that the identified benefit suggesting email is cost effective is not accurate. Wasteful behaviours such as messages sent by the sender to avoid face-to-face contact, hastily composed messages, irrelevant content and the same messages from multiple sources were identified by significant majorities of respondents. These behaviours reduce the effectiveness of email communication whilst also increasing overload and wastage. The evidence of overload and wastage justify the need for an approach that will reduce ineffective email usage without suggesting a blanket reduction in usage as the need for email in a number of situations is clearly recognised. The suggested conceptual framework aims to achieve these things and would therefore be an appropriate way of reducing overload and wastage.

A lack of appropriate training has been identified as an issue in light of the increasing use of email. A significant minority of respondents identified that training would help to support behavioural change. Training could incorporate the conceptual framework as a basis upon which to deliver behaviour based training interventions.

In addition to supporting behavioural change, training can also be used to reduce email load. In line with the findings of Brady (2006) who focused on reducing sent message loads to help reduce the reliance on email usage, the proposed

conceptual framework focuses on reducing sent message loads by encouraging the consideration of others through behaviour based training.

Behaviour based training such as that discussed by DeMarco and Lister (1987), Solingen *et al* (1998) and Jackson *et al* (2003) has tended to focus on either changing the behaviour of users to manage their loads or to reducing sent loads without demonstrating effective methods of achieving this. Again, training interventions based on the proposed conceptual framework would help users to reduce sent loads by using the components of the conceptual framework to teach a practical thought process to reduce loads.

Despite the value of training being shown by authors such as Frazee (1996), Jackson *et al* (2003, 2006) Soucek and Moser (2010) and Huang *et al* (2011), there may be difficulties in implementing a training programme due to the current poor experience of users when attending training. Only 13.3% of all respondents had attended training related to email in the past twelve months, of these 49.3% felt that the training was appropriate for their role. In addition, none of the provided training focused on behavioural issues. It is not possible to assess whether the low uptake of email related training is due to a lack of provision, apathy related to attending training or the poor quality of training provided. If 49.3% of provided training is relevant to users' roles then it suggests that the reason for low uptake may be a combination of all three factors.

Therefore, simply setting up a training scheme may not have the desired effects if the uptake of training programmes is low. The benefits of behaviour based email training are clear but it will be necessary to couch these in terms that will engage with users, motivating them to attend the training sessions.

In order to make training interventions successful the benefits to the individual will need to be made clear rather than simply a focus on reducing waste or enhancing effectiveness. Buy in from all institutions providing a common training plan would also need to be sought. The problems with training appear to affect all roles so a training plan that caters for all would need to be considered.

Concerns have been discussed about the nature of training programmes provided in the FE sector currently. Uptake is generally low and the relevance and efficacy of training programmes appears to be questionable. Evidence from the research conducted appears to suggest that structured, behavioural based interventions are

required to address this. The issue of training could be dealt with very effectively if it can be introduced at an early enough stage. Managing behaviours and expectations may be easier if the work is carried out before specific cultural bonds are made. Students in the areas of Business Management, IT Systems and Information Management would make ideal subjects for this type of training. These students would have the potential to differentiate into a variety of roles within organisations and therefore exist within different cultural settings. As such, by putting in place training to adjust their mind set before this happens a more effective, cross cutting influence may be achieved. A useful analogy would be to think of omnipotent and totipotent stem cells. By considering individuals' who have yet to specialise into a unipotent cultural state it would be possible to influence their behaviours whilst they are in the omnipotent, student state where they may be more receptive.

Concerns over the continued growth in email have been noted as 88.6% of respondents felt that email usage would continue to grow in future years. Evidence from the study suggests that appropriate coping strategies and behavioural modifications are not in place as evidenced by symptoms of overload. Continued growth would further compound these issues. In addition, a shift in culture towards the use of email was cited as a primary driver for this change. With a driver for this shift in culture being the increase of distance working and non-geographically located teams it is more important than ever to ensure that appropriate methods are in place to ensure the effectiveness of the email usage.

When considering the influence of technology on cultural change it is worth noting that work by authors such as Markus and Robey (1998), Pfeffer (1982) and Robey and Azevedo (1994) tend to suggest that cultural change happens to people as a result of the technology rather than emphasising the importance of the individual in the process. Whilst later suggestions by Brynjolfsson and Hitt (2000) detail the importance of successfully leveraging technological change there is no suggestion that users may influence the change by adapting how they interact with the new technologies.

The role of management leverage and the influence of the developing technologies is evident but there is space for users to influence how the technology affects them. By changing their relationship with the technology culture, email can be used much more effectively, enhancing communication and

reducing the load on users. The proposed conceptual framework could be implemented to achieve such an aim. In addition to influencing cultural change, the conceptual framework can also be used address some of the issues brought up by respondents when asked about behavioural changes that could be brought in to help enhance email usage. Consideration of others and the relevance of messages came through as a strong behavioural change. The ways in which the proposed conceptual framework may address this have already been discussed.

A further strong response came from increasing effective use by making better use of alternatives, constructing emails more clearly and managing expectations in terms of responses. Again, each of these has been considered within individual components but what is clear is that effective behavioural change is seen as a means to enhance email usage. In addition, training is further cited as a means of improving usage. This further adds weight to the argument of using this conceptual framework as a basis for effective training. Even when questioned about system features that present barriers to effective usage, respondents still considered the lack of training and user issues as concerns working to the detriment of effective email usage. What is clear is that behavioural modification tied in with effective training is required to bring about successful change.

Behaviour based training programmes would also present an effective vehicle in which to deliver the proposed conceptual framework and the underpinning principles. Where behaviour training focuses on relationship generation and addressing of the needs of others, the principles of the proposed conceptual framework can be discussed with users and adoption can be encouraged. As a paper based conceptual framework the proposal may be difficult to access for users who may not understand the implications of the components. However, as the basis for a behaviour based training intervention, the conceptual framework could be used effectively to influence behaviour positively to overcome the issues identified in the research.

In response to research question eight it is clear that, after amendments, the proposed conceptual framework is still relevant. Whilst some components were removed, others combined and the relationship between the reconsidered there is evidence to show that users value the components and that there is a need for such a framework.

Chapter 6 Conclusions

Having presented the analysis and discussion of the primary phases of the research in chapter 5, it is necessary to conclude the work in relation to the research questions set in chapter 2. This chapter will present the final conclusions to the research undertaken in the thesis. Each of the research questions will be addressed to demonstrate how it was answered and the key findings for each. Reflection will also be provided on the philosophical meanings of the findings and on the process of undertaking the research itself.

To fully conclude each question, the initial motivations for its inclusion will be revisited along with the findings and what they meant for the development of the thesis. Table 6.1 is included below to map the research questions to the relevant conclusions.

Table 6.1. Mapping research questions to conclusions

| Research Question | Relevant Conclusions Sub-Chapter |
|--|----------------------------------|
| 1. What impact does culture have on email use? | 1 |
| 2. How do users view the constituents of working relationships? | 2 |
| 3. How has email use changed? | 3 |
| 4. Does email overload exist in the Welsh FE sector? | 4 |
| 5. What impact can perceived manageable maximums for email use have on the identification of overload? | 4 |
| 6. How do users perceive email use will change in the future? | 5 |
| 7. What behavioural changes could be implemented to support change? | 6 |
| 8. How relevant is the conceptual framework proposed in the literature review? | 7 |

6.1 Conclusion 1

A number of analyses have been undertaken to address the question of what impact culture has on email use. The influence of role culture has been explored in depth to include analysis at both the meso and micro-cultural level. In addition user perceptions of the constitution of working relationships has been explored in depth. Further to this, opinions on the role that technology has in shaping culture have emerged from the analysis of the results.

The first area for analysis was to investigate whether role culture has an influence on email use as predicted in the conclusions to the literature review. Roles

represent the meso-culture within the Colleges under study in that the sector itself is the macro-culture and specific departments represent the micro-cultures within the organisations. During the analysis into the influence of role on email usage all of the results gathered in the questionnaire and interview phases of the research were analysed based upon the role distinctions identified. The result of this were descriptive as well as statistical differences in the ways that roles used email. Out of the twelve statistically tested components, there were nine that demonstrated statistical significance relating to the difference between the roles under study. In those components where statistical difference was not identified, the levels of similarity were still very low and the results only just insignificant.

Differences between the ways the identified roles view and use email have been demonstrated. There are significant differences between usage statistics that have been shown to be related to employment role. Senior Managers appear to send and receive the most email, most likely to feel that loads have increased and also exhibit other signs of email overload in the form of sending many more messages than they feel are manageable to send. Middle Managers are similarly overloaded and tended to spend the greatest amount of time using email. In terms of sent messages middle managers do not differ significantly from Senior Management and Business Support. Roles other than academics are likely to be content with their current email load. They tend not to wish to change current loads and are least likely to believe that they waste time using email. Academics are least content with email load and most likely to wish to change.

Academics do not follow the established trends. They have much lower sent and received message loads and also the lowest time spent using email. However, they perceive wastage similarly to both Senior and Middle Managers who send and receive much greater loads. This appears to be related to the perception of manageability which shows that, whilst overall loads are low for this employment role they exceed what is perceived to be manageable which may account for the high desire to change.

The patterns observed may be explained by the roles undertaken. Senior Managers, Middle Managers and Business Support tend to be office based and may therefore have greater capacity to deal with email. Academics are not predominantly office based which may explain why they perceive waste as issues

related to repeated messages or irrelevant content which would impact more greatly on the time they spend using email. The differences in email user profiles for the generic roles point to different structures, choices and potential effectiveness of the use of email in these roles. These can be identified as the cultural markers that influence communication within and beyond these groups resulting in differing perceptions about wastage, email load, manageability, computer literacy, system dependence and the nature of human interaction at the meso-cultural level. However, when these analyses were reproduced for the micro-cultural level the assertions made in the literature review conclusions could not be supported. It was suggested that at the job level, differences would exist between them in terms of their email usage.

When analysing the findings for the jobs identified within the Business Support role some differences in the ways that the identified jobs view and use email have been demonstrated. Despite this there is no significant statistical evidence to show that differences can be attributed to group. Statistical differences can be seen in relation to received messages but for sent messages, time spent, perceived maximums and perceptions of wastage there is no statistical evidence to support the assertion that groups at a micro-cultural level influence email behaviour.

The relationships shown at the meso-cultural level in terms of the relationship between actual and perceived load and perception of increase do not persist when looking at jobs at this level. Similarly, the relationship between actual and perceived load and the desire to change does not produce the same pattern at the micro-cultural level when compared to the meso-cultural level. Whilst the results do suggest that significant differences do not persist, it is important to take note of the small sample size used in this case. With such a small sample size there is the potential for the results to be less reliable. If similar results could be observed in a larger sample, for example in the Academic role where individuals can be grouped by broad subject specialities, then it would strengthen the observations made in this analysis. Statistically significant differences were only noted in two of the twelve components at this level. In addition, descriptive differences noted in the longer answer questions were not marked and where coded showed little in the way of difference when analysed as quantitative data.

The same analysis was finally carried out for the job groups identified in the Academic role. Some differences in the way that the groups identified view and

use email have been shown. However, there is little evidence to suggest that these differences are statistically different. Sent and received loads, the desire to change, perceptions of manageability, average time spent and consideration of others did not differ statistically. This suggests that micro-cultures do not have an influence on email usage, perceptions and behaviour. The relationships shown by at the meso-cultural level in terms of the relationship between actual and perceived load and perception of increase do not persist when looking at groups at this level. Similarly the relationship between actual and perceived load and the desire to change does not produce the same pattern at the academic micro-cultural when compared to the meso-cultural level. The only significant differences observed were seen in the perceptions of wastage, which is the same at the role culture level. In addition, the correlation between perceived manageability of sent and received messages persists in this analysis.

The findings for Academic groups are very similar to those for the Business Support groups. This is important as the Business Support groups were only represented by a small number of respondents. That the significance has been confirmed with a larger group of respondents lends weight to the assertions made that the meso-cultural level appears to be the point at which group has a significant impact on email usage. The final conclusions from this is that role culture does have an impact on the way that email is used but that differences are significant at the role level and no lower. Departments and jobs do not generate significant differences in email usage. Culture therefore does have an impact on communication, in this case email communication, and as such there will be an impact on working relationships.

In summary:

What impact does culture have on email use?

Culture appears to have an impact on email use but it is not recursive as different levels of culture are explored. Role cultures do exhibit statistically different behaviours when using email but the idea of infinite difference is not supported.

6.2 Conclusion 2

Having initially found it difficult to identify what constitutes a good working relationship in existing literature the analysis of user perceptions of good working relationships demonstrates that consideration needs to be made of concepts that may lie outside the traditional interpretation of working relationships. Users strongly identified that effective and appropriate communication is an essential part of a good working relationship. Whilst this did relate to existing literature which considered that effective working relationships could be characterised by communication that went beyond superficial matters, the analysis and discussion went far beyond this.

Relating to email use it is considered that good working relationships result in the use of email for appropriate tasks and in an appropriate manner. Examples have been drawn from the analysis that illustrate this through the anticipation of the needs of recipients. The preferred method of communication appears to vary and, as discussed previously, the best method of learning this would be to get to know the recipient in order to better anticipate their needs. As the subjective distance would be high in this instance, this exercise should be undertaken face-to-face.

Honesty is also considered to be an important element. Honesty is an essential component in trust which has been shown to be essential in effective communication, especially when equivocality is high. Quality and sufficiency of information is important in developing trust and less rich methods of communication, such as email, if used with individuals with whom there is a low level of relationship may not facilitate this. The effect would be to reduce trust which would damage the working relationships.

The language used is important when considering the potential for misinterpretation. This was a concern raised by many respondents and shows that they do not wish to have their communication misinterpreted. The most effective way to avoid this is to develop trust in the working relationship. The fact that the instance of this is so high suggests that effective working relationships may not be prevalent in the response group. Differences in the perception of importance relating to trust were demonstrated in senior managers which follows patterns observed in earlier analyses of email usage. Respect and tolerance were also shown to be linked to good working relationships. Again, effective communication, especially in a cross cultural context are essential in enabling respect and

tolerance to be developed. As a core component of good working relationships it is important that these are developed. What is clear is that communication forms a central role in the development of good working relationships. Effective communication enables the development of trust and honesty and facilitates the development of respect and tolerance in cross cultural communication.

The analysis of cross cultural communication information gathered during the interviews demonstrates where issues may be present in the sector under study. The perception of good working relationships has been mapped alongside the proportion of sent messages. The purpose of this was to initially try to map the difference between sent and received messages observed in earlier analyses. It was demonstrated that a high proportion of working relationships are focused within roles. In addition, a large proportion of email traffic is sent outside of the role. Based upon the discussion of good working relationships it is asserted that in these circumstances there is a high possibility of misinterpretation of communication between roles.

There is also evidence of an imbalance in perceptions. Users in some roles perceive working relationships with users in others roles and this perception is not reciprocated. There is further danger is of assuming that relationships exist where they don't as it may lead to miscommunication. This is most evident in the senior management role where the vast majority of relationships are inwards facing and most of the email communication is outward facing which may increase the potential for misinterpretation or damaging messages to be transmitted. There is evidence to suggest that greater cross cultural relationship building needs to be undertaken. This suggestion is made sector wide as the interview participants used to form these judgements were drawn from a cross section of the Colleges involved in this research. There is evidence of hierarchical communication within the conceptual framework but this is not backed up by fully hierarchical communication processes.

In summary:

How do users view the constituents of working relationships?

Good working relationships in relation to email use are ones where open, honest and appropriate communication take place and where there is mutual respect, tolerance and equality. Generally, the views of relationships do not change

between roles but senior managers place less emphasis on communication and more on mutual respect. A disparity between relationships and sent messages has been shown which suggests issues caused by cross-cultural communication.

6.3 Conclusion 3

Initially, there was no clear evidence that email use was increasing over time. The data from gathered studies seemed to suggest that there was no pattern. However, analysis showed that there is evidence to suggest that email use has changed over time and is having an impact. Whilst the overall averages failed to suggest changes in email use, once the data was broken down to compare like for like patterns emerged. A number of studies that considered sent and received messages used managers as a sample group. The findings for managers in this study were isolated and compared.

With regards to sent messages, the data suggests that there has been an increase when compared to earlier studies. Only 56.8% of managers sent fewer than 30 messages per day compared to 75% (Markus 1994). In addition, 68.4% sent 21 messages or more compared to only 25% (Markus 1994). Whilst this is an early example, the trends persisted. Ingham (2003) identified that 18 messages were sent per day, on average, by managers. In this study the average was 30. Flood (2001) identified that 25% of managers sent more than 30 emails during a working day and 40% send between 11 and 30. In comparison to, 56.8% report sending less than 30 messages with 43.2% sending greater than 30. Dabbish and Kraut (2006) reported an average of 21 messages sent by managers per day compared to 30 in this study. The same increases in sent messages couldn't be observed in non-managers. The data that enabled the relevant analysis was from sources that did not compare in relation to context. However, Ingham (2003) showed an average of 17 messages for non-managers compared to 15 in this study suggesting that it is managers who are driving the increase in sent messages.

When considering received messages the same issues are present regarding the difference in management and non-management respondents. However, comparisons were offered with Sillince et al (1998) and Flood (2001) that showed that for a comparable population, received load had increased. Sillince *et al* (1998) observed that 81% of respondents received less than ten email messages per day. This is compared to only 17.3% of respondents in this study receiving ten

messages or fewer per day. When management users are considered on 4.4% of senior managers received less than ten messages per day. In addition, Flood (2001) observed that 55% received greater than 20 messages daily compared to 86.5% in this study. It can be concluded that there has been an increase in management use of email. It may be that managers are realising the identified benefit of a written record or that they are managing by exception. It is not clear from the results what the reason is. However, when considered in conjunction with the results from the discussion around working relationships there is evidence to suggest that managers are generating load for other managers, especially senior managers.

In summary:

How has email use changed?

There is no clear pattern of increase for the sample group as a whole. However, usage statistics for managers have demonstrated a significant rise in email use both in relation to sent and received messages. Generally speaking, non-management roles have not seen such a large increase in email use.

6.4 Conclusion 4

This conclusion reports on the outcomes for both research question four and five. The two are considered together as overload and perceived maximums were considered within the same analysis. Waste was the prime indicator of waste that was used to evaluate the presence of overload. Where previous research has failed to demonstrate a clear link between levels of usage and feelings of overload, the measure of perceived maximums is used in this research in an attempt to address this. Whilst usage statistics may fluctuate between papers and across timeframes, an increase is not necessarily a precursor to email overload itself.

If the load increases in line with the perception of manageability then it may be considered that the user is not overloaded. Where usage exceeds the perceived level of manageability then there is cause to be concerned about overload. Additionally, where load exceeds perceived manageability, the desire to change usage is higher than the average further implying a measure of overload.

The measure of perceived manageable maximums has shown that the sample group as a whole are overloaded with actual loads exceeding those that are considered to be the maximum to both send and receive. Managers' loads are considerably higher than the perceived maximums and non-managers below for

sent and slightly above for received messages. It is important to note that business support users are sending and receiving below their perceived maximums.

The fact that business support users buck the trend lends weight to the assertion that the measure of perceived manageable maximums are a good measure of overload. This role was also least likely to identify that loads had increased, least likely to wish to change their load and least likely to consider that time had been wasted.

Business support users were also least likely to consider that others needs were important and identified more strongly with the benefits of using email. As a result of this it can be considered that perceived manageable maximums is a good way to assess overload within a sample group. However, it is important to note that what is considered to be manageable may change based upon a number of factors and that the results of this study only represent a snapshot. Further, longitudinal work may be required to validate this measure.

An average of 65 minutes daily was measured in this study. There is evidence that this is an increase on other studies such as Frazee (1996) who observed 50 minutes and Lyons (2002) who observed 49 minutes. Compared with Sillince *et al* (1998) where 77% spent less than 30 minutes daily, only 18% did so in this study. There is evidence to suggest the time spent is increasing. There are also links to role when considering time spent. Senior management spent on average 90.02 minutes per day, middle management spent 100.12 minutes per day, Business Support spent 68.28 minutes per day and Academics spent 47.04 minutes per day. There is evidence to suggest that this may be linked to the nature of the work undertaken in each role.

59.5% of all the respondents felt that they wasted time when using email. On average, 18.69% of time is perceived to be wasted. Once again, there were differences in terms of perception of wastage between the roles. In addition, the perception of how much time is wasted also differed. Senior managers reported an average of 19.59% wastage. Middle managers reported an average of 22.23% wastage. Business Support reported an average of 16.32% wastage. Academics reported an average of 18.53% wastage. A variety of reasons were cited for the wastage but the most important was irrelevant or duplicated messages. This behaviour was noted both in terms of user generated long answers questions and was selected of a list of inappropriate behaviours in a later question. This indicates

that the issue is significant in generating waste from the users' perspective. This is an important finding as it places the cause of excessive load on the sender rather than poor coping strategies employed by the recipient.

Wastage as a measure of overload has further demonstrated that overload exists within the FE sector. Importantly, the issues of repeated messages from different sources and irrelevant messages that are no spam have been identified in different questions, both as spontaneous responses to longer answer questions as from lists of wasteful behaviours. Identifying these as prime causes of overload provides an important focus for interventions.

In summary:

Does email overload exist in the Welsh FE sector?

The analysis and discussion has shown that there are significant markers to suggest that overload does exist in the Welsh FE sector. Time wastage, identification of wasteful behaviours, and a failure to be considerate of the needs of others are all indicative of overload. When combined with users sending and receiving more email than they perceive to be manageable the evidence is convincing. There are also a significant minority of users who wish to change their email use, a percentage that increases when other overload markers are introduced.

In Summary:

What impact can perceived manageable maximums for email use have on the identification of overload?

The evidence suggests that this measure can be used to help assess whether or not overload exists. Tied in with other overload measures there is evidence to suggest that where actual load exceeds perceived manageable maximums then there are a number of other examples such as greater perceptions of increase, more time wasted and greater desire to change email use.

6.5 Conclusion 5

Study of the results suggests that a significant majority of users believe that email will continue to grow in future years. Coupled with evidence of recent growth there is a clear pattern of increasing usage. As current loads exceed user perceptions of manageability in a number of cases already, further increases in load would likely have an increasingly detrimental effect on the users.

A major reason for the perception that email would continue to grow was that the culture in the sector was moving further towards email as a means of communication and that this was influencing how much users were engaging with email. However, this is not necessarily viewed as being a positive thing by a number of respondents. This cultural shift may be driven by merger, multi-site organisations, distance working or cost cutting measures.

It has been discussed that whilst the culture present determines adoption of technology, technological development does affect the culture within an organisation. There is the question of whether it is the tail wagging the dog in terms of email and culture relating to future increases. Responses from users give the distinct indication that the move towards increased email use is inexorable and that the shift has been set in motion and that they feel helpless to prevent it. A logical conclusion for the changes in culture could be related to management leverage of technologies as they develop or as situations change as observed in merged institutions. Management grade users have been shown to be more overloaded based upon the mismatch of actual and perceive manageable loads. In this situation, management may not perceive that increasing email usage would be beneficial.

There is also clear evidence that users perceive that email usage has reached a saturation point. This idea is suggested both by users who perceive that email will continue to grow despite this and that it will stop growing as a result of this. Some users perceive that core tasks of email will be taken over by other methods such as instant messaging and effective document sharing systems. However, some argue that this would simply shift the load to other areas in a similar way that the introduction of email didn't reduce load initially, it simply provided an additional avenue for it to be generated. Whether or not respondents felt that email would continue to grow, there is clear evidence that the cultures within the organisation in question are driving the use and potential increase in email usage. Where some users view email as a useful and effective tool there are many who are concerned about the impact it will have on their time to do other things. There are feelings that the situation has reached saturation point and that an increase in usage would

be detrimental. In addition, the potential of other systems to replace email is recognised by some but potentially lacks the support to make them the norm. The responses provided here lend further weight to argument that email overload is highly individual and that matches between perceived maximums and actual load should be a focus in increase email effectiveness.

In Summary:

How do users perceive email use will change in the future?

An overwhelming majority of users believe that email will continue to grow and that the increasing use will be driven by cultural changes which will push email further to the forefront of communication practice. A number of users identified that a saturation point had already been reached and that alternative methods may be needed but that these are not evident.

6.6 Conclusion 6

Users were also asked to provide examples of how user behaviour could be changed to promote the effective use of email. Suggestions for behavioural change related to email use have identified three key areas for consideration, the needs of others, better self-management and behaviour training. All three lend weight to the usefulness of the proposed conceptual framework. Consideration of others is built into the proposed conceptual framework and would therefore address the concerns raised here. Combined with considering the needs of others there are then provisions to help manage own time to reduce load. The issue of consideration of others ties in with the conclusions that sender behaviour has an influential role to play in the mediation of user load. This affects the recipients' time management by increasing their email load.

Whilst it was concluded that sender behaviour is a key element in generating load, responses in this chapter suggest that behavioural changes to help manage own load and time would also be beneficial. There is recognition that there is a need to manage the load of relevant and genuine emails and that if loads are to continue to increase then changes are required to ensure that this can be managed by users.

Finally, improving current email usage by looking at alternatives and constructing email more effectively is also tied up in the proposed conceptual framework. The conceptual framework actively encourages users to look at appropriate alternatives to email communication. In addition, the consideration of others links to message construction.

There is clear evidence that training is required to ensure effective changes can be made. It has been suggested that training attended by participants in the study has been ineffective and focused on areas that have brought little benefit to users. The number of those attending training was low with 13.1% attending training in the past twelve months and 48.9% believing that this training was appropriate for their role. Training tended to focus on technological systems or accredited courses. Targeted training that focused on behavioural change as well as technical competence may be more effective as evidence from previous study suggests. Training that is built around the proposed conceptual framework would contain both elements enabling more effective training. Behavioural change was shown to be effective in up to 90% cases (Huang *et al* 2011). In addition, in another study, behavioural based training was recommended as a means of reducing up to 50% of sent messages to one line messages thus reducing the load on the recipient.

Evidence suggests that training based upon behavioural interventions is significantly more effective than technical training. The technical training provided to users in this study has not been deemed to be effective and users themselves identify that training based on modifying both sender and recipient behaviour would make email systems more effective. Finally, the results gathered about technological barriers to effective email use yielded interesting findings. Remote working yielded issues related to a lack of access to email and the merging of institutions demonstrated issues such as migration and changes in systems. There were also concerns over the storage of emails which links directly to increasing email loads and the effects that this has on user behaviour.

It is clear that whilst there are seemingly legitimate technological barriers which affect email usage, a number of these can be circumvented through the use of training and behavioural change. The clear example of where this is not feasible is lack of access of technology or systems that do not work as they should. Other than that, in the cases of storage, security and spam messages, behaviour can be adjusted to improve the use of systems.

Despite having been asked for examples of technological barriers, a significant minority of those who provided responses to this question identified user behaviour (15%), lack of training and competence (10.6%) and lack of personal interaction (9.7%) as barriers. These barriers are clearly not in place as a result of the technology itself. These issues have already been discussed but inclusion of

these as answers to this question lends significant weight to the assertion that training and behavioural development can negate the most significant barriers to email usage.

Here there is further evidence to suggest that users' desire behaviour based interventions to enhance email use. There is a clear link here between the behaviour of an individual and the perception of technological barriers and whilst there is some work to be undertaken to ensure parity of access a number of issues may be addressed through behavioural training. It was suggested during the proposal of the conceptual framework that the conceptual framework itself would not be sufficient to enact change, it would need to be accompanied by robust training. There is evidence that behavioural training would be a suitable vehicle to generate this change whilst also enabling other issues to be addressed relating to technological barriers. The conceptual framework and training may be positively influenced by a 'Technological Evangelist' placed in a sector wide strategic position to influence the adoption of behavioural based training.

In summary:

What behavioural changes could be implemented to support change?

Despite a large majority of users claiming that they consider the needs of others when using email there is evidence that users believe that this is not enough, greater consideration of others is needed. In addition, better time management skills are sought after as well as robust and effective behavioural training which has been effective in other studies.

6.7 Conclusion 7

Significant analysis and evaluation of the proposed conceptual framework has been undertaken to identify the extent to which the findings of this study impact upon the original proposal and how relevant the conceptual framework remains in light of this analysis. In most cases, the components of the original conceptual framework were supported by the findings but there were areas where components were no longer considered as relevant parts of the conceptual framework and structural changes to ensure the correct emphasis on the different conceptual framework components.

Based upon the discussion of the evidence a revised conceptual framework was proposed that removed some components and combined others. The Group or

Individual communication component was removed as it was decided that irrelevant or duplicated messages were a cause of wastage and that this consideration gave rise to these more so than any other.

The majority of the first stage components remained the same as it was shown that they remained relevant after analysis and evaluation of the proposed conceptual framework. More significant changes were realised in part two of the conceptual framework where suitability of content was removed and placed in part one, comfort level and sender recipient behaviour was combined as they represent very similar issues as evidenced in the study feedback.

A very important finding from the analysis of the responses was that the perception of the importance of relationship is lower than other more technical issues. However, it was also shown that relationship elements permeate throughout the components of the conceptual framework and there are influences evident on all of them.

As a result, the conceptual framework was revised to reduce the number of stages and to place relationship at the forefront sitting around all other considerations. Each of the conceptual framework components is affected by how well the sender knows the recipient. A good relationship as defined in the chapter considering working relationships will impact positively on how users interpret each of the components and should help in the reduction of wastage identified throughout the research.

Having justified the inclusion of each component, the existence of the conceptual framework itself has been clearly justified. There is clear evidence to suggest that the long believed benefits of email are not entirely relevant in light of increasing use, waste and overload issues. Cost effectiveness no longer seems relevant and the initially identified drawbacks appear to be increasingly realised in modern email practice.

Despite this, perceptions of benefits and drawbacks seem unchanged illustrating stagnation in user perceptions. This sits within the context of user identified increases in use and load. Training programmes have also apparently failed to help the issue. As a result, the proposed conceptual framework has a valid place in the management of email effectiveness. The proposed conceptual framework

helps address the benefits and drawbacks as well as overload and wastage that is evident in the study. As one of the primary aims of the conceptual framework is reduce the wastage in email systems usage it is entirely relevant. The conceptual framework is also designed to tackle causes of overload. These are evident throughout the study in terms of perceived increases in usage, imbalances between actual and perceived maximum loads and the desire to change. Within this context the conceptual framework is again entirely valid.

The conceptual framework represents a behavioural approach which has been shown to be effective in adjusting email use. In addition, users themselves have identified this as a means of making email more effective. Deploying the conceptual framework as part of a training scheme that is relevant and addresses the needs of users may be effective in reducing the negatively impacting elements of email use and increasing overall effectiveness.

Finally, the conceptual framework itself would help to empower users to take control over their engagement with technology and enable their impact on culture to be realised. Early analysis of the literature suggested that individuals within cultural groupings both impact upon the culture and are affected by the existing culture. In the case of email use it appears that, up until now, users have been more affected by culture than influencers of it. Deployment of the conceptual framework may help to address this as well as increasing cross cultural communication between roles and mitigating some of the issues present due to high subjective distances.

In Summary:

How relevant is the conceptual framework proposed in the literature review?

The results, analysis and discussion have shown that the conceptual framework needed revision when compared to the initial proposal. With these revisions taken into account the framework has become highly relevant and has the potential to form an integral part in the behaviour based training that users have identified as being required.

6.8 Philosophical Reflections

This sub-chapter will focus on philosophical conclusions that can be drawn about the research undertaken. These will consider all aspects of the research starting with the literature review and further discussing the relevance of the research approach and data collection. The literature review considered that MRT forms the basis of email practice which maintains that email usage should be reduced in favour of other methods of communication. However, the philosophical bases upon which this conclusion rests is flawed.

MRT relied upon a scientific approach which essentially reduced the examination of the communication process to a mechanical level. This would ease the exploration of the issue as the process of communication can be complex. As a result, the human component of the communication process is ignored entirely. There is no allowance made for how different individuals may react in the same situations where other variables are different. For example, whilst situations were used to base the research upon there is no allowance for how well the sender knows the recipient or what mood they are in at the time.

Whilst the approach is flawed, there is still merit in the findings in that identifiable processes that can be tested and verified are present. This does allow for a greater degree of replicability if combined with other means. Further studies have included elements of the approaches used in MRT and have shown some similarity. The need to include elements of the relationship between individuals leads to a necessarily subjective area of research into cultures. It is difficult to measure culture using scientific means as the variables that impact on the outcome are numerous and will differ from person to person. No approach has been taken to studying the effects of culture on email practice. In order to investigate this there will be a need to measure quantifiable components of email activities and analyse them based upon marked cultural bandings. Role culture has been shown to be present in the Welsh FE sector and so represents an appropriate base on which to investigate cultural implications.

Further investigation into the Noise model of communication showed another accepted approach to investigating the communication process that reduces it to a mechanical system, ignoring a number of the influencing factors. It has been discussed that there are several factors that may influence decision making and

other communication elements throughout this process and so require study into the influence that individuals have upon the communication process.

Previous research into email overload does consider the role that individuals play in the management of email. In order to measure the impact of interventions there is a need to quantify certain elements. Behaviours associated with email practice are coded and measured to observe how users interact with them. An important missing link is again the role that the perceptions of individuals play in this process.

Email overload research tends to rest on whole numbers of sent and received emails and the employment of largely technologically based interventions to manage loads. There is never an exploration of what actually constitutes overload for a specific individual. Without this how can it be assumed that overload exists at all? Ingham (2003) explored overload from a behavioural perspective using qualitative means to identify how users may behave when they become overloaded. Whilst this approach does take into account the human aspect it still fails to quantify what constitutes overload.

What is clear is that an overly scientific approach to researching the issue of email efficacy is not entirely effective as it does not allow for the influence of the human aspects of the process. Entirely humanistic approaches achieve the exact opposite in that they cannot fully quantify the causes for behaviours observed. Based on this, an approach is needed that combines the two enabling the human elements of the communication process to be explored in conjunction with more quantifiable elements such as raw usage in order to fully explore the influence of individuals and groups on the investigation of email efficacy. Overall, the review of the literature has led to the decision to take a critical realist approach to the issues of improving email effectiveness. This approach will allow for the effect that individuals have on systems to be taken into account whilst also providing for the use of both quantitative and qualitative approaches to data gathering.

In terms of the conceptual framework developed in the literature review, philosophically, a suitable approach has been selected in the use of a contingency conceptual framework. This approach considers that a range of components are equally important in decision making and that user experience must be considered important in this process.

From a research philosophy perspective, this approach will enable analysis both through quantitative and qualitative means. Further research will be possible that will allow the influence of individuals on the communications process to be fully addressed. The earlier limitations of model development such as seen in MRT can also be addressed.

The conceptual framework was initially proposed as a vehicle to tackle a wide variety of issues related to email effectiveness and was born out of the results of studies that were constrained by their methodological approaches. During the evaluation it became clear that the conceptual framework itself may have the potential to impact upon the philosophy of email practice as well as tackling technical elements.

The potential that the conceptual framework has to enact cultural change is as a result of the method taken in gathering user feedback. The approach that enabled statistics to be discussed in the context of user opinion has enabled the conceptual framework to be more effectively adjusted than would have been possible had statistics been the only marker. As a result, user perceptions have been used to shape a conceptual framework that is designed for users and as such should be more recognisable to them.

The methods chosen to gather data and feedback on culture and relationships have yielded significant findings that allow for the influence of human elements in the communication process. These findings clearly show that culture has an impacting factor on the communication process. The role of human interaction in the email communication process was not included in a number of earlier studies due to the philosophical approaches taken during the research process.

A number of the elements used to generate the findings on the influence of human elements were investigated using open ended questions and humanistic approaches. The open nature of the semi-structured interview enabled the gathering of different opinions from the various roles to the same question. Similarly, the questions dealing with working relationships in the survey were phrased as open ended to gather opinion rather than a response to a fixed list.

It is argued that this approach adds greater validity to the findings. When provided with detailed responses, they were coded and analysed any common groupings have emerged as a result of independent feedback. The spontaneous generation

of similar opinions provides greater evidence of the existence of the phenomenon that would be possible by asking respondents to select from a list.

When analysing results related to use, overload and perceived manageable maximums the philosophical approach to gathering the information and data has yielded interesting and behaviour related results. As email is system employed by people it is right that the perceptions of these users are measured in order to gauge their opinions of the effectiveness of email.

Criticism could be levelled at the non-scientific approach taken to gathering data about time spent and wastage. It is true that the approach has relied upon self-reporting in these areas but this is not necessarily different to approaches taken in other research such as in Ingham (2003).

It is argued that this approach is no less effective as it takes a different view of the same issues. Actual time spent as measured by a machine may be susceptible to error if a user forgets to log out, stop the timer or artificially inflates the results. A considered reflection from the user, whilst no less susceptible to error, may help to provide insight into the way they perceive their email usage. This approach is vindicated by statistical analysis that has suggested difference between roles and a good degree of similarity between roles.

The same criticism could be applied to perceptions of wastage. However, these are necessarily user perceptions rather than those measured scientifically. What causes an individual's time to be wasted is necessarily subjective and will differ from user to user. As a result, the decision was taken to collect this information through an open ended question. Once again, a good degree of agreement was noted and similar results emerged when the issues were selected off a list of inappropriate behaviours.

The approach taken to gathering feedback on the issue of the future of email growth represents a very humanist method. Open ended questions were used throughout and these were linked to statistical data where relevant.

It was important to gather unfiltered opinions from users rather than providing a list of established ideas. There is little research on how and why users feel that email will develop and so taking a categorical approach would have limited the scope of responses significantly. The approach taken enabled users with opinions to voice them and for a consensus to be drawn up.

It is argued that this approach will yield a much more relevant outcome that will be more accessible to users. The responses did yield surprising results where users keyed into ideas such as organisational culture and behavioural change and where they identified that effective training could be a useful vehicle.

Based solely upon the statistical evidence relating to training it could have been argued that training was not an effective tool at all. However, it is clear as a result of the method taken that it is the nature of the training rather than training itself that is not effective.

The approach has enabled users to identify what would best help them during the periods of change rather than identifying this through theoretical means.

6.9 Limitations

It is recognised that there are limitations that impact upon the study. These limitations will be identified and discussed in this chapter. The key limitations are that of a lack of a measure of saturation in the results and a lack of multivariate analysis.

An identified limitation to the work is the failure to include saturation assessments. Ritchie et al (2003) discuss that there is a certain point during qualitative data collection after which there is a diminishing return on the continued investment of time and other resources in the research, this is the point of saturation. Essentially, continued collection of data fails to shed new light on the issue (Glaser and Strauss 1967). It is noted that a single occurrence or code is necessary to ensure that it is included in the analysis framework (Crouch and McKenzie 2006).

A major difficulty with the use of this method is that there are a number of influencing factors that need to be considered when deciding whether saturation has been met. The heterogeneity of the population, selection criteria, need for nesting, groups of interest, multiple sample, data collection, budget and resources (Ritchie et al 2003) and the scope, nature and quality of the data (Morse 2000) all appear to influence the point at which saturation is reached.

There is also a debate suggesting that the use of saturation assessments may be unprovable (Morse 1995) or even inappropriate (Dey 1999). A major cause for concern when using the approach is that claims may be made that saturation has been achieved without any real evidence to demonstrate how it was achieved (Bowen 2008).

In addition to the difficulties in establishing the factors that influence saturation it is also complicated to define an appropriate sample size that is deemed to achieve saturation (Guest et al 2006). Numbers of actual interview participants range from one to ninety five (Mason 2010) across a range of disciplines, with sample sizes of around twenty being the most common. It is worth noting that twenty was the target sample size for this study but situational factors limited the response to fifteen.

Whilst there is debate on the validity of the use of a saturation assessment it is noted that undertaking this assessment may have led to the further gathering of interview participant feedback in this study. The relatively small numbers of participants within each strata of sampling may limit the ability to generalise based upon the findings. Whilst it is conceivable that no new findings would have come from further interviews there are no criteria upon which to base the judgement.

In addition to strengthening the findings, saturation projections could have been used to base the original projection relating to the numbers of interviews required as part of study. Whilst it is clear that a lack of detailed consideration of saturation is considered a weakness in this study it is worth noting that the interview results were not analysed in isolation to generate conclusions, they were integrated with the findings from the large scale survey. However, as Mason (2010) points out, smaller scale use of interviews where it is not perceived that saturation is fully achieved may only be used to generalise about the population upon which the study was conducted. In this case, generalisation to other populations may not be possible.

The second key limitation is the exclusion of multivariate analysis during the evaluation of the statistical data collected during the study. A number of univariate and bivariate analysis techniques were employed (Chi-Square, ANOVA and Correlation) all of which are valid methods of assessing the data. However, it may be argued that failing to carry out multivariate analysis weakens the conclusions and reduces the ability for the outcomes to be applied.

Multivariate analysis refers to the statistical techniques that are used to analyse data arising from more than one variable which may result in data that demonstrates which variables impact on others and may also allow for variables to collapsed into one another and additional analysis to be undertaken (Bryman 2008).

However, despite the consideration that conclusions may be strengthened there are also suggestions that multivariate analysis may introduce additional complexity, increase the difficulty in interpreting the results and reduce the robustness of the assumptions that arise from the analysis (Everitt 1975).

Everitt (1975) further highlights the issue that attempts to carry out multivariate analysis are often made before the data is screened using more simple methods to see if it appropriately lends itself to the methods being applied. In the case of this study some early attempts were made to undertake multivariate analysis in the form of multiple regression analysis. However, it became clear that the data itself did not lend itself to this type of analysis.

It is likely that the data was not appropriate as the survey questions had not been designed in such a way as to allow this type of analysis to take place. This suggests that the failure to undertake multivariate analysis stems from the survey design rather than omitting it from the analysis in the first place. This limitation could be addressed through further study, refining the questions to deliberately enable analysis via multivariate analysis.

6.10 Recommendations for Future Study

There are a number of areas in which further study would be of benefit based upon the conclusions of this study. These areas are: testing the proposed conceptual framework of email selection, testing training plans, testing the concept of relationship and sent messages, transferring role culture analysis to other sectors, investigating factors that impact on perceived manageable maximums, email bullying, looking at relative waste and investigating approaches to enable multivariate analysis related to the proposed conceptual framework.

Whilst the inclusion of conceptual framework components has been discussed in the context of the research undertaken it still exists as an untested concept. Further research is required to test the conceptual framework in practice to assess whether it has the beneficial impact for which it was designed. A smaller scale approach should be taken within the same sector employing both the training plans and role distinctions.

A small group of participants would be tasked with implementing the proposed conceptual framework in order to assess its value. A case study approach would be employed to track the experiences of the participants who would be asked to implement the framework as they saw fit. This study would be based on qualitative

methodology in order to assess the perceived impact of the framework.

Measurable aspects could be used to assess any change in actual usage but this would only be relevant in the context of perceived manageability.

The value of behavioural training has been identified through the literature and by users themselves. Current training does not appear to be meeting the needs of users and therefore needs training. Research needs to be undertaken to design and implement the training in such a way as to maximise the buy in by users. The design of behavioural training can be built around the proposed conceptual framework and include awareness of wasteful behaviours as well as facilitating the development of cross-cultural relationships.

Further review of literature on the behavioural training interventions in the area of email and in wider contexts would be necessary to establish parameters that have been successful elsewhere. From this, behavioural training based upon the conceptual framework would be developed and piloted with groups of users. Following the training quantitative and qualitative measures would be used to consider the behavioural change that had occurred. A further stage would then be introduced to refine the training to target any areas that were not positively influenced by the initial training interventions.

The infographic that demonstrates the imbalance between perceived relationship and sent email appears to show a pattern that can explain email inefficiency. The approaches taken to generate the conceptual framework need to be undertaken with a larger group of participants to ensure that it is generalisable. The confirmatory work would benefit from being conducted within the Welsh FE sector to enable comparison but may also be undertaken in different contexts.

A wider scale approach would be required to successfully validate the suggested framework. A survey method could be employed to access larger numbers of people and additional factors could be explored to see how they impact upon the relationship and sent email. Within this, the nature of the roles under study would need greater profiling in order to provide further insight into the role/communication imbalance.

The role culture analysis and relationship discussion is central to the conclusions of this research. The value of these findings need to be transferred to other sectors. The same research approaches should be used within sectors possessing clear role cultural delineations in order to test the conclusions. The nature of the

Welsh FE sector as a collection of incorporated bodies with a single point of oversight means it reflects a number of other sectors in terms of organisation.

In order to explore replicability the same methods would need to be applied within the different context. Roles would need to be established and substituted for those used in this study in order to ensure comparability. The aim would be to use a wide scale survey approach to make direct comparisons with this study.

This work has highlighted the importance of perceived manageable maximums in the context of sent and received messages and has suggested a link with overload and waste. What is missing from this work is a clear understanding of the factors that impact upon manageability and how these change as situations change. A study should be undertaken with a smaller sample group looking closely at the factors that affect how users perceive manageability and how this may change over time.

The use of a smaller sample group would be critical in this research as it would allow much greater depth of exploration of the factors that affect perceived manageability. The results from this study offer a snap shot of opinion at a given time. There may be factors that affect this from day to day that are not considered. If these can be modelled it may be possible to identify and relate the factors that influence perceived manageability and therefore make the measure much more useful in the management of email.

Email bullying has emerged as an issue that was not expected at the outset of this study. As a result, detailed analysis has not been possible. However, there is evidence that the phenomenon persists in this context. As a result there is value in conducted further study into the area of email bullying to assess the prevalence of the phenomenon, its antecedents and effects. A smaller scale approach favouring greater depth would enhance the value of this work.

Workplace bullying and cyber bullying are areas of intense interest in performance management. Email bullying has largely been ignored in recent years but evidence uncovered in this study suggests that it is still an issue. A further study that goes beyond simply identifying the existence of email bullying and looks more closely at causes and effects would add significant value. Once again, a case by case investigation of users who report bullying activities would yield a depth of information that would allow the causes and effects to be uncovered and investigated with a view to reducing the impact.

The relativity of waste needs to be explored. Whilst there is evidence that waste exists in email use it has not been tested in relation to other means of communication. A cost benefit analysis or a scientific testing approach looking at how sending the same information via a range of communication methods could be used to assess the relative impact of email waste.

A quantitative approach could be employed to measure time wasted when using a range of communication methods in the workplace. Time and perception of waste are key measures but wasteful behaviours could be monitored as well. For example, comparisons could be made of self-reported wastage during meetings compared to actual observed wastage during meetings. Other measures of wastage could be applied to face-to-face encounters, amongst others, to fully quantify relative waste.

A final area of investigation worth undertaking is to explore whether variables used in this study can be reformatted to enable forms of multivariate analysis. Multivariate analysis will strengthen the overall conclusions of this work and may lead to further insights into impacting factors.

Chapter 7 Contribution to Knowledge and Impact

7.1 Contribution to knowledge

Having concluded the work and demonstrated how the research questions have been answered this chapter will set out what contribution to knowledge has been made throughout the research. This chapter will demonstrate how the research undertaken has contributed to the body of knowledge on the subject of email communication. Contribution will be discussed for each of the identified objectives. The work of authors who have critiqued the approach taken to develop MRT has been significantly developed and it has been concluded that the findings contained within MRT cannot stand on their own without the influence of a human element, primarily in the form of relationships.

Exploration of the literature around cultures has further confirmed the need for relationship to be considered in the communication process, especially within email use. This led to the publication of a paper on this subject (see appendix B) in which the influence of relationship on email usage was discussed and a conceptual framework proposed to maximise effectiveness of email use based upon leveraging the benefits of relationship.

The concepts of communication noise and overload have been combined to produce a concept of email interference which demonstrates stages of communication process at which a breakdown may occur when email is used. This discussion has also led to the proposal of ways to measure wastage in email usage which may have result in the reduction of email overload and therefore increase the effectiveness of email use. This proposal was discussed in a conference paper (see appendix B) where the new framework for email selection, was outlined. Crucially, existing literature on the subject of overload tends to focus on the behaviours and activities of the recipient. It has been suggested that senders, and roles, have a larger role to play in the management of overload than previously considered. Whilst management strategies are important, it is the sender that dictates the actual received load as they generate it. Looking at overload from both of these perspectives provides a new approach to the management of email overload.

Whilst models of email use have previously been proposed and a contingency approach used in earlier research, the proposed conceptual framework is unique in a number of ways. It enables the inclusion of user experience in the process as

well as guiding users towards alternative means rather than examining existing motivations.

It has been discussed that excluding the experiences and needs of users is not appropriate when exploring a communication phenomenon such as email communication. In addition, overload and wastage are necessarily subjective and as such the human experience must be included. The proposed conceptual framework therefore allows decisions about communication methods to be made not just on perceptions of complexity as in MRT but also based upon individual experience both of their own behaviour but also in terms of the activities of the recipient.

The conceptual framework places the activities of the sender centrally in the reduction of email overload and therefore reduction in email wastage. As it was proposed that the sender has a significant role in the generation of email overload so to the conceptual framework enables the sender to manage this through a relationship based approach. For the first time in a conceptual framework of email communication, the existing relationship between the sender and the recipient is included as an important component in the communication process. The impact that this can have in ensuring that email is used effectively is considered to be very important. It has been suggested that the relationship an individual has with another may make email an effective method of communication in a situation where, if that relationship was not present, it may not be.

The conceptual framework generated is designed to guide users towards choosing between email and other communication methods based upon a variety of factors. Existing contingency models demonstrate the thought process relating to using email but do not enable the selection of appropriate alternatives. Where alternatives are included the models tend to be more simplistic, such as MRT, and result in approaches that favour abandoning email in favour of other methods. In the case of the proposed conceptual framework, where email is deemed to be the most effective then it should be used as it can be as, if not more effective than other methods in that situation.

After the potential value being assessed through the research, the proposed conceptual framework of email selection or deselection still represents the most comprehensive contingency based conceptual framework on the use of email currently. In addition, it is significantly different in that it does not seek to predict

the influencing factors on email use, it seeks to encourage behavioural adjustment during the thought processes leading up to email use to ensure that it is used effectively. The proposed conceptual framework is also different in that it now emphasises the essential role of relationship in the email process.

The role of relationship as a mediating factor in all other influencing components related to email use is a new conclusion and represents the reverse side of the argument that communication enhances relationship in that relationship enhances email communication. Once again, the crucial role of relationship can be clearly seen in the justification of the conceptual framework. Relationship has been shown to be more than a component within the process. Instead it permeates the other criteria, influencing the perception of them and mediating how well they may be applied in practice. The specific roles of relationship and culture, whilst postulated through the literature review, required assessing in the context of email usage. The results have yielded a number of original contributions such as the statistical evidence to support role culture influence, the refuting of cultural suggestions that differences would exist at a micro-cultural level, the existence of an inward looking, outward emailing culture and a conceptual framework of working relationships based upon communication.

The findings into the influence of role culture and email have shown that different roles use email in different ways. This is important as it suggests that where different roles are identified within organisations they will interact with email in different ways. It also suggests that cross cultural communication existing between the roles will lack effectiveness as their approach to email is different. This links strongly to the conceptual framework generated looking at the instance of working relationships and outgoing email. In the case of Senior Managers especially, the vast majority of working relationships are inward looking indicating that they exist within the same role. A large proportion of email is outward indicating that emails are sent outside of the role. In this situation, the lack of relationship with the recipient may negatively impact the effectiveness of the sent email. There are similar patterns to be observed with the other roles. Importantly, there is a mismatch between the perceptions of where good working relationships lie. This conceptual framework will require testing in order to validate its usefulness.

It is clear that role is influential in email use but there is no evidence to suggest that other cultural groupings have an impact. Cultural theory especially that of Wiio

and Goldhaber (1993) suggested that communication would be affected gender. However, Herring (1994) and Rossetti (1998), who wrote specifically on the ways in which men and women use email, failed to conclude that significant differences exist. There does not appear to be any evidence to suggest that cultural groupings other than roles have a significant impact on email usage and therefore interventions should focus on reducing the issues introduced as a result of cross cultural communication as it occurs between the identified roles. This is crucial as it will allow for the targeting of interventions at a cultural level that will have an impact on actual usage. This is the first time that a point at which culture ceases to influence a communication method has been identified and supported through statistical means.

Crucially, the discussion around culture and role has allowed for the definition of the component parts that users believe are important for relationships to exist in relation to email use. Defining good working relationships has shown that developing them is important in reducing inefficiencies and damage that may potentially be caused during email use. The role of relationship is a critical one and statistical evidence now exists as a result of the analysis undertaken to demonstrate how it must be considered as the central driving factor in email use.

The work undertaken to address the objective relating to email use statistics has shown that on the surface there does not appear to be any pattern related to the changes in email usage. For the first time a large number of studies that quote usage have been brought together and considered in relation to one another and significant patterns have emerged.

The raw comparisons between the papers citing usage statistics do not take into account the role being studied or the numbers under study. When this is taken into consideration it is clear to see that, in key areas such as management usage, email loads are increasing in whole terms. However, as the results are converted to enable comparison between pieces of research it becomes clear that increases are present.

There was also a discrepancy noted internally where management and non-management usage statistics varied dramatically. This was observed in other, much smaller studies but can now be verified in this larger study. This study has also provided insight into user perceptions of the increase in sent and received messages. This has not been measured directly in other studies and appears to

correlate to the perceptions of overload and desire to change. Here there is a clear link between load and how it changes and the impact that this has on the individual.

A crucial contribution to knowledge is the introduction of the perceived maximum manageable criteria. This criteria has not been included in email research previously and clearly demonstrates that there must be a subjective link made between an individual's load and how much they feel that they can manage. It is not possible to state that a given raw figure represents the point at which overload occurs as every user is different. What is clear from the analysis is that there is a correlation between maximum manageable sent and received messages suggesting that users perceive that the two should balance, which they currently do not.

Once again, there are significant differences between the roles in terms of the these maximums and how these related to actual load appears to have a bearing on perception of increase and desire to change email usage. In these cases, where a user sends or receives more than they believe is manageable they tend to perceive greater levels of change and have a greater desire to change. Due to the apparent links it is possible to use the difference between perceived maximums and actual load to predict overload as there is an apparent link between these and markers of overload. The final important contribution to knowledge to be taken from the meeting of this objective is the causes of waste and overload. Earlier work has focused on the role of the recipient in managing overload through the use of effective filing strategies and time management techniques. It was asserted in the literature review that the sender has a bearing on the load of others and should be considered as the cause of overload and wastage as well.

Users identified irrelevant or duplicated messages as a drawback, a cause of time wastage and an inappropriate use of email in different sections of the research. This issue is generated by the sender and to an extent is out of the control of the recipient. As such, a large proportion of the negatively impacting issues relating to email use are sender generated and do not rest on the actions of the recipients.

The work undertaken into the future direction of email use has also yielded significant contributions. As no direct measure of user perception of future change has been made this study represents a first in the area. Despite the wastage, drawbacks and inappropriate use users believe that email use will continue to

increase. User perceptions of the role of culture and technology are also surprising. There is a definite engagement with how organisational culture influences technological use and an engagement with the idea that changes may be unstoppable as a result of earlier decisions.

Earlier evidence had suggested that behavioural based training yielded effective results in terms of changing email use. This effectiveness was not measured from a user perspective, instead statistical measures were drawn up and employed to measure outcomes. In this study there is evidence that users themselves recognise the benefits of behavioural training in making email use more effective. Whilst there is no opinion on the form that this training may take, the fact that users are identifying it suggests that it may be employed effectively and represent a more cost effective use of training budgets. This is the first time that there is clear evidence of users strongly identifying with the potential benefits of behavioural training.

In addition, there is also evidence that users perceive that behavioural approaches may be a key to overcoming technological barriers which has not been discussed previously in relation to email. Whilst there are a number of original contribution to emerge from this piece of research, conclusions relating to relationship and culture remain the most important contribution in this area. Whilst relationship was postulated previously, two decades of email research have failed to capitalise on the importance of it. Demonstrating through statistical means that internal cross cultural communication issues exist and that relationship can be used as a mediating factor in this is a significant contribution in the field of email communication. In addition, the size of the sample group and scope of literature explored means that the findings can more easily be generalised to other sectors.

7.2 Impact on stakeholders and wider applicability

This chapter will consider the impact that the research can have upon the FE sector in Wales to demonstrate the practical applicability of the findings. In addition, the ability to apply the work in a wider context will be discussed. As shown early on, the Welsh FE sector is being subjected to significant cuts (Colegau Cymru 2014b). As such, methods of reducing costs without affecting provision of services should be a priority to ensure the ongoing viability of the sector.

The research undertaken has shown that wastage in the use of email exists within the sector. 59.5% of the respondents felt that they had wasted time when using email of which 18.69% was wasted on average. In monetary terms this equates to significant amounts of waste. The research has identified that the main causes of waste are work related emails that are either not relevant or have been duplicated. Knowledge of this provides the sector with a target point for reducing the effects of waste.

Current usage statistics have also been generated which show that management roles have significantly increased their use of email when compared with studies conducted over the previous twenty years. In addition, evidence has been presented that suggests that managers are most likely to be overloaded and therefore contributing to the observed waste. Importantly, the introduction of the perceived manageable maximum measures has shown that all roles are generally overloaded with managers more so.

Knowledge of where overload exists will provide the sector with additional intelligence which will enable the targeting of wasteful behaviours within the roles most likely to be affected by them. This will enable the most efficient targeting of interventions.

The research has also shown that roles within the FE sector exhibit significantly different behaviour when using email. The influence of culture has been shown to stop at the role level as analysis into job influences failed to yield significant differences. Again, this intelligence should prove useful to the sector as it will enable interventions to enhance email use to be targeted by role, focusing on the issues specific to each. Along with knowledge of the interaction of wasteful behaviours and levels of overload this will enhance the likely outcomes from training interventions.

Two important themes relating to working relationships have been explored which will further enhance possible interventions. Definitions of the constituent parts of effective working relationships, as identified by users, have been generated which can be used within the sector to help individuals to develop better working relationships and to identify where they exist which will inform communication method choices. Effective implementation of this should reduce waste and damage caused by poor email use.

In addition, evidence gathered during the study suggests that there is a mismatch between the perception of where working relationships exist and where email is sent. Knowledge of this will enable the sector to focus on building working relationships that cross the cultural boundaries resulting from roles which should further enhance the use of email and reduce the waste caused by the misunderstandings and poor use that occur as a result of not having a good working relationship.

Perceptions of how email will develop in the future provides an insight that the sector can use to enhance email use. Users generally perceived that email use would continue to grow as cultures had shifted further towards it as the preferred method of communication. Knowledge of this will enable institutions to consider what their internal communications cultures are and whether a continued move towards greater email use, which was not viewed as positive by users, should be the chosen approach.

Users also identified that behavioural based training is needed which would help to achieve all of the potential benefits discussed. The training could be targeted by role to enable the identification of the key issues that commonly affect each and how to lessen the impact on others. Users could engage with perceived maximums and consider their own actual usage to identify personal overload. Training may also focus on how to reduce the impact on other users by adjusting personal behaviours in line with identified issues. Crucially, behavioural training has been identified by users and can be developed using issues and approaches identified by users. This should enhance buy in to the training programme and enhance the outcomes in reducing identified waste and improving email use.

Finally, the conceptual framework which has been suggested, whilst untested, could be used within the sector as the framework upon which training and behavioural modification is built. By engaging with the framework it is hoped that users will gain a greater appreciation of how their behaviour may impact upon others and how they can make more effective choices when choosing whether or not to use email.

It is clear that the research undertaken has substantial implications for the FE sector in Wales. The potential for reducing waste and enhancing working practices make the work extremely valuable in a climate of increasing austerity within the

sector. Crucially, as the work is cross sector the applicability of generalised interventions within all institutions is clear.

There is value to the work outside of the FE sector in Wales as well. A number of factors exist within the research that make it highly generalisable to a number of sectors both in the public and private sectors. The nature of the Welsh FE sector, as a quasi-private/public sector mean that the findings could be used to generate interventions within a number of sectors both private and public.

The size and scope of the work also enhance the generalisability of the findings. Having engaged all Colleges within the sector it can be assured that a strong representation from all areas of the sector is made. As a result of this a high degree of confidence can exist when taking the findings and applying them in different contexts.

The use of role culture as means of analysing cultural difference also adds to the applicability of the findings across different sectors. The existence of roles across a number of different sectors has been shown (Handy 1995). Whilst these may not exactly match those studied here it provides a start point for analysis within different sectors with confidence that the roles will behave differently and that structured, specific approaches are needed. The value of behavioural training targeted by role is therefore highly applicable across a number of different contexts.

Chapter 8 References

ABEGGLEN, J. (1958) *The Japanese factory*, USA, Free Press.

ADAM, R. (2002) Is e-mail addictive? *Aslib Proceedings*, 54, 2, pp85-94.

ALLEN, L. (1994) Electronic mail as a medium for rich communication: an empirical investigation using hermeneutic interpretation, *MIS Quarterly*, pp143–157.

ARGENTI, P. (1998) *Corporation communication*, 2nd Edition, USA, McGraw-Hill.

ATTRIDE-STIRLING, J. (2001) Thematic networks: an analysis tool for qualitative research, *Qualitative Research*, 1, pp385-405.

BABAR, M. VERNER, J. NGUYEN. P. (2007) Establishing and maintaining trust in software outsourcing relationships: an empirical investigation, *The Journal of Systems and Software*, 80, pp1438-1449.

BAGULEY, P. (1994) *Effective Communication for Modern Business*, UK, McGraw-Hill.

BAILEY, D. (1997) *Research for the health professional, a practical guide*, 2nd Edition, UK, F.A. Davies.

BARKI, H. RIVARD, S. TALBOT, J. (2001) An integrating contingency model of software project risk management, *Journal of Management Information Systems*, 17, 4, pp 37-69.

BARRETT, G. BASS, B. (1976) Cross-cultural issues in industrial and organisational psychology, in DUNETTE, M (ed) *Handbook of industrial and organisational psychology* pp1639 – 1686, USA, Rand McNally.

BARUCH, Y. (2004) Bullying on the net: adverse behaviour on e-mail and its impact, *Information and Management*, 42, pp361 – 371.

BBC. (2013) Further education colleges face funding cuts,
<http://www.bbc.co.uk/news/uk-wales-23887764> Accessed: 11/09/2013 14:00.

BEACH, L. MITCHELL, T. (1977) A contingency model for the selection of decision strategies, *Academy of Management Review*, July, pp 439 – 449.

BECK, C. (1999) *Managerial Communication: Bridging Theory and Practice*, USA, Prentice Hall.

BENGSTON, R. (1980) Business opportunities of electronic mail, *Columbus Laboratories, USA*.

BELLOTTI, V. DUCHENEAUT, N. HOWARD, M. SMITH, I. GRINTER, R (2005) Quality versus quantity: email-centric task-management and its relationship with overload, *Human-Computer Interaction*, 20, 1, 2, pp89-138.

BERG, B. (2009) *Qualitative research methods the social sciences*, 7th edition, USA, Allyn & Bacon.

BLOOM, B. (1987) *The closing of the American mind*, USA, Simon and Schuster.

BLANTON, J. WATSON, H, MOODY, J. (1992) Towards a better understanding of information technology organisation: a comparative case study, *MIS Quarterly*, 16, 4, pp531–555.

BLUMER, H. (1954) What is wrong with social theory? *American Sociological Review*, 19, pp3-10.

BOBBITT, H. FORD, J. (1980) Decision-maker choice as a determinant of organisational structure, *Academy of Management Review*, 5, 1, pp 13-2.3

BOURKUE, L. FIELDER, E. (1995) *How to conduct self-administered and mail surveys*, UK, Sage Publications.

- BOWEN, G. (2008) Naturalistic inquiry and the saturation concept: a research note, *Qualitative Research*, 8, 1, pp137-152.
- BOWEN, G. (2009) Document analysis as a qualitative research method, *Qualitative Research Journal*, 9, 2, pp27-40.
- BOYATZIS, R. (1998) *Transforming qualitative information: thematic analysis and code development*, USA, Sage.
- BRADY, D. (2006) *!#?@ the E-Mail. Can We Talk? *Business Week*, 4012.
- BRAUN, V. CLARKE, V. (2006) Using thematic analysis in psychology, *Qualitative research in psychology*, 3, 2, pp77-101.
- BROMILEY, P. (2005) *The Behavioural Foundations of Strategic Management*, USA, Blackwell Publishing.
- BROWN, C. BOSTROM, R. (1994) Organisation design for the management of end-user computing: re-examining the contingencies, *Journal of Management Information Systems*, 10, 4, pp 183-211.
- BRYMAN, A. (2008) *Social research methods, 3rd edition*, UK, Oxford Books.
- BRYNJOLFSSON, E. HITT, L. (2000) Beyond computation: information technology, organisational transformation and business performance, *Journal of Economic Perspectives*, 14, 4, pp23 – 48.
- BULMER, C. (1997) Supervision, how it works, *Nursing Times*, 93, 48, pp53-54.
- BURNS, N. GROVE, S. (2001) *The practice of nursing research: conduct, critique and utilisation (4th ed)* USA, W. B. Saunders.
- BURNS, T. STALKER, G. (1961) *The management of innovation*, UK, Tavistock.

- BURRELL, G. MORGAN, G. (1979) *Sociological paradigms and Organisational analysis*, UK, Heinemann.
- BURTON, P. (1994) Electronic mail as an academic discussion forum, *Journal of Documentation*, 50, 2, pp99-110.
- CAPE, P. (2008) Slider scales in online surveys, *Survey Sampling International*.
- CAREY, J (1989) *Communication as culture*, USA, Routledge.
- CARLONE, D. TAYLOR, B. (1998) Organisational communication and cultural studies: A review essay, *Communication Theory*, 8, 3, pp 337–367.
- CARLSON, J. ZMUD, R. (1999) Channel expansion theory and the experimental nature of media richness perceptions, *Academy of Management Journal*, 42, 2, pp 253-170.
- CARR, N. (1998) The politics of e-mail, *Harvard Business Review*, 76, 2, pp13-16
- CASTELLA, T. (2014) Could work emails be banned after 6pm?
<http://www.bbc.co.uk/news/magazine-26958079> accessed: 02/10/14 17:30.
- CHANDLER, A. (1962) *Strategy and structure, chapters in the history of the American industrial enterprise*, USA, MIT Press.
- CHILD, J. (1980) The challenge of national enquiry, invited address presented at the meetings of the Management and Organisation Theory Division, *Academy of Management, Detroit USA*.
- CHILD, J. (1981) Culture, contingency and capitalism in the cross national study of organisations in CUMMINGS, L. STRAW (eds), *Research in Organisational Behaviour*, 3, pp303-356.
- CLARKE, A. (2006) Qualitative interviewing: encountering ethical issues and challenges, *Nurse Researcher*, 13, 4 pp19-29.

COLEGAU CYMRU (2014a) National contract of employment in Colleges of Further Education in Wales, www.colegaucymru.ac.uk Accessed 10:00 25/07/14.

COLEGU CYMRU (2014b) Tight funding squeeze on colleges, www.colegaucymru.ac.uk Accessed 03/10/14 10:30.

COLLINS, H. (1986) Electronic Mail, *Facilities*, 4, 12, pp10–14.

COMPEAU, D. (2007) How much do you know? *Impact Management Research in Action*, 13, 5.

CONNOLLY, C. (1996) Communication: getting to the heart of the matter, *Management Development Review*, 9, 7, pp37–40.

CONRAD, F. SCHOBBER, M. (2000) Clarifying question meaning in a household telephone survey, *Public Opinion Quarterly*, 64, 1, pp1-28.

CONTRACTOR, N. EISENBERG, E. (1990) *Communication networks and new media in organisations*, Organisations and Communications Technology. USA, Sage.

CORBETTA, P. (2003) *Social research, theory, methods and techniques*, UK, Sage.

CROUCH, M. MCKENZIE, H. (2006) The logic of small samples in interview based qualitative research, *Social Science Information*, 45, 4, pp483-499.

CRYSTAL, D. (2001) *Language and the internet*, UK, Cambridge University Press

CUNHA, M. CUNHA, J. (2006) Towards a Complexity Theory of Strategy, *Management Decision*, 44, 7, pp839-850.

CUNNINGHAM, H. GREENE, B. (2002) Before you hit send – getting e-mail communication right, why e-mail etiquette is a critical communication issue, *SCM*, 6, 5, pp6–20.

CURRAN, K. CASEY, M. (2006) Expressing emotion in electronic mail, *Kybernetes*, 35, 5, pp616–631.

DABBISH, L. KRAUT, R. (2006) Email overload at work: an analysis of the factors associated with email strain, *CSCW*, November 04-08 pp431–440.

DAVID, M. SUTTON, C. (2004) *Social research: the basics*, UK, Sage.

DENNING, P. (1982) Electronic junk, *Communications of the ACM*, 25, 3, pp163-165.

DIXON-WOODS, M. AGARWAL, S. YOUNG, B. JONES, D. SUTTON, A. (2004) Integrative approaches to qualitative and quantitative evidence, NHS, Health Development Agency, 2004.

DAFT, R. LENGEL, R. (1986) Organisational information requirements: media richness and structural design, *Management Science*, 32, 5, pp554–571.

DAFT, R. LENGEL, R. TREVINO, L. (1987) Message equivocality, media selection and manager performance, implications for information systems, *MIS Quarterly*, 11, 3, pp35–366.

DAHLER-LARSEN, P. (1994) Corporate culture and morality, Durkheim inspired reflections on the limits of corporate culture, *Journal of Management Studies*, 31, 1, pp1-18.

DAMASIO, A. (1999) *The feeling of what happens: body and emotion in the making of consciousness*, USA, Harcourt Brace and Company.

DANIELS, T. SPIKER, B. PAPA, M. (1997) *Perspectives on organisational communication*, 4th edition, USA, McGraw Hill.

DAVENPORT, T. (2005) *Thinking for a living: how to get better performance and results from Knowledge workers*, USA, Harvard Business School Press.

DAVENPORT, T. PRUSAK, L. (1998) *Working knowledge: how organisations manage what they know*, USA, Harvard Business School Press.

DAWLEY, D. ANTHONY, W. (2003) User perceptions of e-mail at work, *Journal of Business and Technical Communication*, 17, pp170-200.

DEAL, T. KENNEDY, A. (1999) *The new corporate cultures, revitalising the workplace after downsizing, mergers and reengineering*, UK, Orion.

DEKAY, S. (2010) Designing email messages for corporate readers: a case study of effective and ineffective rhetorical strategies at a fortune 100 company, In: HEMBY, K. (2010) Focus on business practice, *Business Communication Quarterly*, 73, 1, pp106–126.

DEMARCO, T. LISTER, T. (1987) *Peopeware: productive projects and teams*, USA, Dorset House.

DENISON, D. (1990) *Corporate culture and organisational effectiveness*, USA, Wiley.

DENNING, P. (1982) Electronic junk, *Communications of the ACM*, 25, 3, pp163-165.

DENNIS, A. KINNEY, S. (1998) Testing media richness theory in the new media: the effects of cues, feedback, and task equivocality, *Information Systems Research*, 9, 3, pp256–274.

DEY, I. (1999) *Grounding grounded theory*, USA, Academic Press.

DIEFENBACH, T. (2009) Are case studies more than sophisticated storytelling?: methodological problems of qualitative empirical research mainly based on semi-structured interviews, *Qual Quant*, 43, pp875-894.

DINGWALL, R. (1980) Ethics and ethnography, *Sociological Review*, 1980, 28, 4, pp871-891.

DIRKS, K. (1999) The effects of interpersonal trust on work group performance, *Journal of Applied Psychology*, 84, pp445-455.

DIRKS, K. FERRIN, D. (2001) The role of trust in organizational settings, *Organization Science*, 12, pp450-467.

DONALDSON, L. (2001) *The contingency theory of organisations*, USA, Sage Publications.

DOODY, O. NOONAN, M. (2013) Preparing and conducting interviews to collect data, *Nurse Research*, 20, 5, pp28-32.

EASTERBY-SMITH, THORPE, R. LOWE, A. (1991) *Management research, an introduction*, UK, Sage.

Email metrics report. www.maawq.org. Accessed 09:45 22/03/13

EISENSCHITZ, T. (2002) E-mail law, *Aslib Proceedings*, 54, 1, pp41-47.

ERIKSON, K. (1967) A comment on disguised observation in sociology, *Social Problems*, 14, pp366–373.

ESRC (2015) Framework for research ethics, update January 2015, www.esrc.ac.uk Accessed: 05/02/15 09:00.

EVANS, D. (1979) *People and Communication*, 2nd Edition, UK, Pitman Publishing.

EVANS, C. WRIGHT, W. (2008). To all users: Copy all users. *Management Services*, 52, 1, pp24–27.

EVERITT, B. (1975) Multivariate analysis: the need for data, and other problems, *The British Journal of Psychiatry*, 126, 3, pp237-240.

FAIN, J. (2004) *Reading, understanding and applying nursing research (2nd ed)* USA, F. A. Davis Company.

FANN, G. SMELTZER, L. (1989) Communication attributes used by small business owners / managers for operational decision making, *Journal of Business Communication*, 44, pp236-252 .

FEASY, D. (2002) *Good practice in supervision with psychotherapists and counsellors: a relational approach*, UK, Whurr.

FIEDLER, F. (1964) A contingency model of leadership effectiveness. In Berkowitz (Ed) (1964) *Advances in experimental social psychology*, USA, Academic Press.

FIELDMAN, H. LAHLOU, S. (2004) The impact of a threatening e-mail reprimand on the recipients blood pressure, *Journal of Managerial Psychology*, 20, 1, pp43-50.

FILZMOSER, P. HRON, K. REIMANN, C. (2010) The bivariate statistical analysis of environmental (compositional) data, *Science of the Total Environment*, 408, 19, pp4230-4238.

FISHER, D. BRUSH, A. GLEAVE, E. SMITH, M. (2006) Revisiting whittaker and sidner's 'email overload' ten years later, *Microsoft Research*, pp309–312.

FITZLOFF, E. KUJUBU, L. (1999) E-mail outsourcing slowly gains ground, *Infoworld*, March 1st, pp47-48.

FLOOD, G. (2001) Management email overkill is a corporate malady, *Computing*, 22, pp49.

- FOSS, N. HALLBERG, N. (2014) How symmetrical assumptions facilitate theoretical advance in strategic management: the case of the resource-based view, *Strategic Management Journal*, 35, 6, pp903-913
- FRAZEE, V. (1996) Is email doing more harm than good? *Personnel Journal*, 73, 2, pp12-18
- FRY, L. SCHELLENBERG, D. (1984) *Congruence, contingency and theory building: an integrative perspective*, Seattle: University of Washington.
- FULK, J. SCHMITZ, J. STEINFELD, C. (1990) A social influence model of technology use, in: *Organisations and Communications Technology, USA*, Sage.
- GABARRO, J. (1978) *The development of trust, influence and expectations*, In: ATHOS, A. GABARRO, J. (eds) *Interpersonal behaviour, communication and understanding in relationships*, USA, Prentice-Hall.
- GLASER, B. STRAUSS, A. (1967) *The discovery of grounded theory: strategies for qualitative research*, USA, Aldine Publishing.
- GLENDINNING, P (2001) Workplace bullying: curing the cancer of the American workplace, *Public Personnel Management*, 30, pp269–287.
- .
- GLIDER email software, www.glider.io. Accessed 09:40 22/03/13
- GOLDHABER, G. (1993) *Organisational communication 6th edition*, USA, McGraw-Hill
- GOODWIN, J. (1999) E-mail: fighting back, *The Lancet*, 353, pp1372.
- GUANDAGNO, R. CIALDINI, R. (2007) Persuade him by email, but see her in person: online persuasion revisited, *Computers in Human Behaviour*, 23, pp999–1015.

- GUEST, G. BUNBCE, A. JOHNSON, L. (2006) How many interviews are enough? An experiment with data saturation and variability, *Field Methods*, 18, 1, pp59-82.
- GUIRDHAM, M. (2005) *Communicating across cultures at work*, 2nd edition, UK, Palgrave Macmillan.
- HAND, H. (2003) The mentor's tale: a reflective account of semi-structured interviews, *Nurse Research* 10, 3, pp15-27.
- HANDY, C. (1976) *Understanding Organizations*, UK, Oxford University Press.
- HANDY, C. (1995) *The gods of management*, UK, Oxford University Press.
- HARRIS, R. PARADICE, D. (2007). An investigation of the computer-mediated communication of emotions. *Journal of Applied Sciences Research*, 3, 2081-2090.
- HARGIE, O. DICKSON, D. TOURISH, D. (2004) *Communication skills for effective management*, UK, Palgrave Macmillan.
- HARNEY, J. (2005) How outsourcing e-mail management helps financial services companies, *Business Credit*, June, pp42-43.
- HAWKES, N. (2003) Close shaves beat death by whisker, *The Times*, 6 Feb, pp1.
- HECKMAN, J. (1979) Sample selection bias as a specification error, *Econometrica*, 47, 1, pp153-161.
- HERRING, S. (1994) Gender differences in computer-mediated communication: bringing familiar baggage to the new frontier, USA, *America Library Association Annual Convention – Keynote Talk*, 27th June, 1994.
- HEWITT, P. (2006) Electronic mail and internal communication: a three factor model, *Corporate Communications*, 11, 1, pp78-92.

- HEWITT, P. (2007) E-mail and internal communication: enemies or allies? *Internal Communication*, 121, pp9–12.
- HILTZ, S. TUROFF, M. (1985) Structuring computer-mediated communication systems to avoid information overload, *Communications of the ACM*, 28, 7, pp680-689.
- HINDE, R. (1979) *Towards understanding relationships*, UK, Academic Press.
- HOFSTEDE, G. (1981) *Cultures and organisations: software of the mind*, UK, Harper Collins.
- HOFSTEDE, G. (1986) *Culture's consequences, international differences in work-related values*, USA, Sage Publications.
- HOFSTEDE, G. (1993) Cultural constraints in management theories, *Academy of Management Executive*, 7, 1, pp81-94.
- HOLDAWAY, E. NEWBERRY, J. HICKSON, D. HERON, R. (1975) Dimensions of organizations in complex societies: the educational sector', *Administrative Science Quarterly*, 20 , pp37-58.
- HOLE, J. (2008) *Email overload in academia*, Rochester Institute of Technology.
- HOLLIDAY, L. (1999) Challenging questions about e-mail for language learning, *ESL Magazine*, 2, 2, pp14–15..
- HOLLOWAY, I. WHEELER, S. (2010) *Qualitative research in nursing and healthcare, 3rd edition*, UK, Wiley-Blackwell.
- HOLMES, J. SCHNURR, S. MARRA, M. (2007) Leadership and communication: discursive evidence of a workplace culture change, *Discourse and Communication*, 1, 4, pp433–451.

- HOLMES, J. STUBBE, M. (2003) *Power and politeness in the workplace, a sociolinguistic analysis of talk at work*, UK, Pearson Education.
- HOOGERVORST, J. VAN DER FLIER, H. KOOPMAN, P. (2004) Implicit communication in organisations, the impact of culture, structure and management practices on employee behaviour, *Journal of Managerial Psychology*, 19, 3, pp288–311.
- HSEIH, H. SHANNON, S. (2005) Three approaches to qualitative content analysis, *Qualitative Health Research*, 15, 9, pp1277-1288.
- HUANG, A. (2002) Email communication and supervisor-subordinate exchange quality: an empirical study, *Human Systems Management*, 21, pp193–204.
- HUANG, E. LIN, S. LIN, S. (2011) A quasi-experiment approach to study the effect of email management training, *Computers in Human Behaviour*, 27, pp522-531.
- HUCZYNSKI, A. BUCHANAN, D. (2001) *Organisational behaviour: an introductory text*, UK, Pearson.
- HUNTER, J. ALLEN, M. (1992) Adaptation to electronic mail, *Journal of Applied Communication Research*, 20, pp252-274.
- HURST, M. (2007) *Bit literacy: productivity in the age of information and email overload*, USA, Good Experience Press.
- HUSSEY, J. HUSSEY, R. (1997) *Business research, a practical guide for undergraduate and postgraduate students*, UK, Palgrave.
- INGHAM, J. (2003) E-mail overload in the UK workplace, *Aslib Proceedings*, 55, 3, pp166–180.
- JACKSON, T. BURGESS, A. EDWARDS, J. (2006) Simple approach to improving email communication, *Communications of the ACM*, 49, 6, pp107-109.

JACKSON, T. DAWSON, R. WILSON, D. (2003) Reducing the effect of email interruptions on employees, *International Journal of Information Management*, 23, pp22-65.

JACKLE, A. ROBERTS, C. LYNN, P. (2006) Telephone versus face-to-face interviewing: mode effects on data quality and likely causes, *Institute for Social and Economic Research, ISER Working Paper 2006-41*.

JEREJIAN, A. REID, C. REES, C. (2013) The contribution of email volume, email management strategies and propensity to worry in predicting email stress among academics, *Computers in Behaviour*, 29, pp991-996.

JISC, (2005) *Universities and Colleges Information Systems Association (UCISA) information security toolkit, 2nd edition, UCISA, March 2005*.

JOBBER, D. O'REILLY, D. (1996) Industrial mail surveys: techniques for inducing response, *Marketing and Intelligence Planning*, 14, 1, pp29–34.

JOHNSON, A. LEDERER, A. (2005) The effect of communication frequency and channel richness on the convergence between chief executive and chief information officers, *Journal of Management Information Systems*, 22, 2, pp227–252.

KAHAI, S. COOPER, R. (2003) Exploring the core concepts of media richness theory, the impact of cue multiplicity and feedback immediacy on decision quality, *Journal of Management Information Systems*, 20, 1, pp263–299.

KANAWATTANACHAI, P. YOO, Y. (2002) Dynamic nature of trust in virtual teams, *Journal of Strategic Information Systems* 11, 3, 4, 187–213.

KATO, Y. KATO, S. AKAHORI, K. (2007) Effects of emotional cues transmitted in e-mail communication on the emotions experienced by senders and receivers, *Computers in Human Behaviour*, 23, pp1894-1905.

KIKOSKI, J. KIKOSKI, C. (1996) *Reflexive Communication in the Culturally Diverse Workplace*, USA, Quorum .

KING, R. XIA, W. (1997) Media appropriateness: effects of experience on communication media choice, *Decision Sciences*, 28, pp877–910.

KIESELR, S. SIEGEL, J. McGUIR, T. (1984) Social psychological aspects of computer mediated communication, *American Psychologist*, 39, pp1123–1134.

KIMBLE, C. HILDRETH, P. GRIMSHAW, D. (1998) *The role of contextual clues in the creation of information overload*, Proceedings of 3rd UKAIS Conference, University of Lincoln, USA, McGraw Hill.

KINCAID, D. YUM, J. WOELFEL, J. (1983) The cultural convergence of korean immigrants in Hawaii: an empirical test of a mathematical theory, *Quality and Quantity*, 18, pp59-78.

KITCHEN, P. (1997) *Public relations, principle and practice*, 1st edition, UK, Thomson Business Press.

KLEIN, J. (2000) A Critique of Competitive Advantage, *Critical Management Conference, Manchester, July 2000*.

KLUGER, A. DeNISI, A. (1996) The effects of feedback intervention on performance: a historical review, a meta-analysis, and a preliminary feedback theory, *Psychological Bulletin*, 119, pp254–284.

KURTSBURG, T. BELKIN, L. NAQUIN, C. (2006) The effects of e-mail on attitudes towards performance feedback, *International Journal of organizational analysis*, 14, 1, pp4–21.

KUSHLEV, K. DUNN, E. (2015) Checking email less frequently reduces stress, *Computers in Human Behaviour*, 42, pp220-228.

LAMBERT, L. POOLE, H. WOODFORD, C. MOSCHOVITIS, C. (2005) *The Internet, a historical encyclopaedia*, USA, MTM Publishing Inc..

LEE, A. (1991) Integrating positivist and interpretive approaches to organizational research, *Organisation Science*, 2, 4, pp342–365.

LEE, A. (1994) Electronic mail as a medium for rich communication: an empirical investigation using hermeneutic interpretation, *MIS Quarterly*, 18, 2, pp143–157

LEE, L. BRITTINGHAM, A. TOURANGEAU, R. WILLIS, G. CHING, P. JOBE, J. BLACK, S. (1999) Are reporting errors due to encoding limitations or retrieval failure? Surveys of child vaccination as a case study, *Applied Cognitive Psychology*, 13, pp43-63.

LEIDNER, D. KAYWORTH, T. (2006) A review of culture information systems research: toward a theory of information technology culture conflict, *MIS Quarterly*, 30, 2, pp357–399.

LEWIS, M. WRAY, D. (2000) *Literacy in the secondary school*, UK David Fulton.

LIGHTFOOT, J. (2006) A comparative analysis of e-mail and face-to-face communication in an educational environment, *Internet and Higher Education*, 9, pp217-227.

LILLIS, P. TIAN, R. (2008) Cross-cultural communication and emotional intelligence, inferences from case studies of gender diverse groups, *Marketing Intelligence and Planning*, 27, 3, pp428–438.

LIM, V. TEO, T. (2009) Mind you e-manners: impact of cyber incivility on employees' work attitude and behaviour, *Information & Management*, 46, pp419 – 425.

LO, S. LIE, T. (2008) Selection of communication technologies – a perspective based on information richness theory and trust, *Technovation*, 28, pp146-153.

- LONGENECKER, J. PRINGLE, C. (1978) The illusion of contingency theory as a general theory, *Academy of Management Review*, July, pp679–682.
- LOU, H. McCLANAHAM, A. HOLDEN, E. (1997) Mandatory use of electronic mail and user acceptance: a case study, *American Journal of Business*, 12, 2, pp57–62.
- LUCAS, W. (1998) Effects of e-mail on the organisation, *European Management Journal*, 16, 1, pp18-20.
- LUKYANENKO, R. EVERMANN, J. PARSONS, J. (2014) Instantiation validity in IS design research, *Lecture Notes in Computer Science*, 8463, pp321-328.
- LUTHENS, F. STEWART, T. (1977) A general contingency theory of management. *Academy of Management Review*, 2, pp 181–195.
- LUTHANS, F. STEWART, T. (1978) The reality or illusion of a general contingency theory of management: a response to the longenecker and pringle critique, *Academy of Management Review*, July pp 683–687.
- LYONS, J. (2002) *Working parents “spend longer on e-mail”* 19 May, Press Association, London.
- MAHONEY, K. (1998) The politics of e-mail, *Harvard Business Review*, March/April, pp12–13.
- MANLEY, K. (2000) Organisational culture and consultant nurse outcomes: part 1 organisational culture, *Nursing Standard*, 14, pp34-38.
- MARKUS, M. (1994) Electronic mail as the medium of managerial choice, *Organisational Science*, 5, 4, 502-527.
- MARKUS, M. ROBEY, D. (1983) The organizational validity of management information systems, *Human Relations*, 36, 3, pp203–226.

- MARKUS, M, ROBEY, D. (1988) Information technology and organisational change: causal structure in theory and research, *Management Science*, 34, 5, pp583-598.
- MARLUNDA-CARTER, L. JACKSON, T. (2012) Effects of e-mail addiction and interruptions on employees, *Journal of Systems and Information Technology*, 14, 1, pp82-94.
- MARSH, D, FURLONG, E. (2002) Ontology and epistemology in political science in MARSH, D. STOKER, G. (eds.) *Theory and Methods in Political Science*, 2nd edition. UK, Palgrave.
- MARSHALL, C. ROSSMAN, G. (1995) *Designing qualitative research*, 2nd edition, UK, Sage.
- MARSTON, S. JONES, J, WOODWARD, K, (2005) Human geography without scale, *Transactions of the Institute of British Geographers*, 30, pp416–432.
- MARTIN-EGGE, S. (1999) Creating an environment of mutual respect within the multicultural workplace both at home and globally, *Management Decision*, 37, 1, pp24-28.
- MASON, M. (2010) Sample size and saturation in PhD studies using qualitative interviews, *Fourm: Qualitative Social Research*, 11, 3,.
- MCDANIEL, M. WHETZEL, D. SCHMIDT, F. MAURER, S. (1994) The validity of employment interviews: a comprehensive review and meta-analysis, *Journal of Applied Psychology*, 79, pp599-616.
- McKENNA, H. HASSON, D. KEENEY, S. (2006) Surveys. In: GERISH, K. LACEY, A (Eds) *The research process in nursing*, 5th edition. UK Blackwell Publishing.
- MCNEILL, P. (1994) *Research methods*, 2nd edition. UK, Routledge.

- MERTEN, F. GLOOR, P. (2010) Too much email decreases job satisfaction, *Procedia Social and Behavioural Sciences*, 2, pp645–6465.
- MEYER, M. (1975) Leadership and organisational structure, *The American Journal of Sociology*, 81, pp583-599.
- MILES, M. HUBERMAN, A. (1994) *Qualitative evaluation and research methods*, USA, Sage.
- MILLER, N. (1999) Email abuse and corporate policies, *Network Security*, pp 13-17.
- MINTZBERG, H. (1989) *Mintzberg on management*, USA, Free Press.
- MITCHELL, V. (1996) Assessing the reliability and validity of questionnaires: an empirical example, *Journal of Applied Management Studies*, 5, 2, pp199-207.
- MITCHEL, T. BIGLAN, A. ONCKEN, G. FIEDLER, F. (1970) The contingency model, criticisms and suggestions, *Academy of Management Journal*, September, pp 253–267.
- MOHR, L. (1971) Organisational technology and organisational structure, *Administrative Science Quarterly*, 16, pp444-459.
- MORGAN, R. HUNT, S. (1994) The commitment-trust theory of relationship marketing, *Journal of Marketing* 58, 3, pp20–38.
- MORSE, J. (1995) The significance of saturation, *Qualitative Health Research*, 5, 3, pp147-149.
- MORSE, J. (2000) Determining sample size, *Qualitative Health Research*, 10, 1, pp3-5.
- MORSE, J. FIELD, P. (1995) *Qualitative research methods for health professions*, 2nd edition, USA, Sage.

- MULLINS, L. (2008) *Management and organisational behaviour, 8th edition*, UK, Prentice Hall.
- NEISSER, U. (1983) *Cognitive Psychology*, USA, Appleton-Century-Crofts.
- NEWBERRY (2001) Raising student social presence in online classes, *WebNet 2001 Proceedings*.
- NGWENYAMA, O. (1997) Communication richness in electronic mail, critical social theory and the contextuality of meaning, *MIS Quarterly, June, pp145–167*.
- NOE, R. HOLLENBECK, J. GERHART, B. WRIGHT, P. (1997) *Human Resource Management: Gaining a Competitive Advantage*, USA, Irwin.
- OAKLEY, A (1981) Interviewing women: a contradiction in terms in ROBERTS, H. (Ed) *Doing feminist research*, UK, Routledge and Kegan Paul.
- O’KANE, P. PALMER, M. HARGIE, O. (2007) Workplace interactions and the polymorphic role of e-mail, *Leadership and Organisation Development Journal, 28, 4, pp308–324*.
- OLIVER, H. (2002) Email and internet monitoring in the workplace: Information privacy and contracting-out, *Industrial Law Journal, 31, 4, pp321-352*.
- OTLEY, D. (1980) The contingency theory of management accounting: achievement and prognosis, *Accounting, Organisations and Society, 5, 4, pp 413–428*.
- PANTELI, N. (2001) Richness, power cues and email text, *Information and Management, 40, pp75-86*.
- PARKER, C. (1999) E-mail use and abuse, *Work Study, 48, 7, pp257–260*.

PENNINGS, I (1992) Structural contingency theory, a reappraisal, *Research in Organisational Behaviour*, 14, pp 267–309.

PFEFFER, J. (1982) *Organizations and organizational theory*, USA, Ptiman.

PFLEEGER, S, KITCHENHAM, B. (2001) Principles of survey research, part 1: turning lemons into lemonade, *Software Engineering Notes*, 26, 6, pp16–18.

PFLEEGER, S. KITCHENHAM, B. (2002) Principles of survey research, part 2: designing a survey, *Software Engineering Notes*, 27, 1, pp18–20.

PFLEEGER, S. KITCHENHAM, B. (2002b) Principles of survey research, part 3: constructing an survey instrument, *Software Engineering Notes*, 27, 2, pp20–24.

PFLEEGER, S, KITCHENHAM, B. (2002c) Principles of survey research, part 4: questionnaire evaluation, *Software Engineering Notes*, 27, 3, pp20–23.

PFLEEGER, S. KITCHENHAM, B. (2002d) Principles of survey research, part 5: populations and samples, *Software Engineering Notes*, 27, 5, pp17–20.

PFLEEGER, S. KITCHENHAM, B. (2003) Principles of survey research, part 6: data analysis, *Software Engineering Notes*, 28, 2, pp24-27.

PITNEY BOWES (2000) E-mail or E-Stress,
www.pitneybowes.co.uk/news/article.asp?article=103 accessed 23/08/09 18:30.

PIZZUTTI, C. FERNANDES, D. (2010) Effect of recovery efforts on consumer trust and loyalty in e-tail: a contingency model, *International Journal of Electronic Commerce*, 14, 4, pp127-160.

PLAISENT, M. BERNARD, P. (1993) Electronic mail, efficient and effective or a fad? *European Business Review*, 91, 2, pp27–30.

PLANTRONICS (2013) How we work: communication trends of business professionals, <http://www.plantronics.com/us/howwework/> Accessed 16/01/15 13:00.

PLISKIN, N. ROMM, C. LEE, A. WEBER, Y. (1993) Presumed v. actual organizational culture: Managerial implications for implementation of information systems, *The Computer Journal*, 36, 2, pp141–152.

PORTER, M. (1979) How competitive forces shape strategy, *Harvard Business Review*, 57, 2, pp137-145.

POWER, Z. CAMPBELL, M. KILCOYNE, P (2010) The hyperemesis impact of symptoms questionnaire: development and validation of a clinical tool, *International Journal of Nursing Studies*, 47, 1, pp67-77.

PRALAHAD, C. HAMEL, G. (1990) The core competence of the corporation, *Harvard Business Review*, 68, 3, pp79-91.

PSA RESEARCH (2001) "E-mail study", *Goodwill Newsletter*, Goodwill Communications, Burke, VA, www.psaresearch.com/newnewsletter/Goodwilloct01.html#EmailStudy accessed 02/04/2008 16:30.

QUAQUEBEKE, N. HENRICH, D. ECKLOFF, T. (2007) It's not tolerance I'm asking for, it's respect, a conceptual framework to differentiate between tolerance, acceptance and (two types of) respect, *Gruppendynamik und Organisationsberatung*, 38, 2, pp185-200 .

RADICATI, (2008, 2009) www.radicati.com .

RADICATI, S. LEVENSTEIN, J. (2013) *Email statistics report, 2013 – 2017*.

RAMSAY, J. RENAUD, K. (2012) Using insights from email users to inform organisational email management policy, *Behaviour and Information Technology*, 31, 6, pp587-603.

REDDING, W. TOMPKINS, P. (1988). *Organizational communication-Past and present tenses*. In G. Goldhaber & G. Burnett (Eds.). *Handbook of organizational communication* (pp. 5-34). Norwood, NJ: Ablex.

REINKE, K. CHAMORRO-PREMUZIC, T. (2014) When email use gets out of control: Understanding the relationship between personality and email overload and their impact on burnout and work engagement, *Computers in Human Behaviour*, 36, pp502-509.

RICE, R. (1992) Task analysability, use of new media, and effectiveness: a multi-site exploration of media richness, *Organisational Science*, 3, 4, pp475-500.

RICE, R. SHOOK, D. (1990) Relationships of job categories and organisational levels to use of communication channels, including electronic mail: a meta-analysis and extension, *Journal of Management Studies*, 27, 2, pp195-229.

RIORDAN, M. KRUEZ, R. (2010) Cues in computer mediated communication: a corpus analysis, *Computers in Human Behaviour*, 26, pp1806-1817 .

RITCHIE, J. LEWIS, J. ELAM, G. (2003) Designing and selecting samples: In RITCHIE, J. LEWIS, J. (Eds) *Qualitative research practice, a guide for social science students and researchers*, pp77-108, USA, Sage.

ROBEY, D. AZEVEDO, A. (1994) Cultural analysis of the organisational consequences of information technology, *Accounting, Management and Information Technology*, 4, 1, pp23-37.

ROBEY, D. BOUDREAU, M. (1999) Accounting for the contradictory organisational consequences of information technology, theoretical directions and methodological implications. *Information Systems Research*, 10, 2, pp167-185.

ROBSON, P. TOURISH, D. (2005) Managing internal communication: an organisational case study, *Corporate Communications*, 10, 3, pp213–222.

ROGERS, C. (1969) *Freedom to learn*, USA, Merrill.

ROMM, C. PLISKIN, N. (1999a) The office tyrant – social control through e-mail, *Information Technology and People*, 12, 1, pp27–43.

ROMM, C. PLISKIN, N. (1999b) The role of charismatic leadership in the diffusion and implementation of e-mail, *The Journal of Management Development*, 8, 3, pp273-290.

ROMM, C. PLISKIN, N. RIFKIN, W. (1996) Diffusion of e-mail, an organisational learning perspective, *Information and Management*, 31, pp37-46 .

ROSENBLOOM, R. WOLIK, F. (1970) Technology and information transfer, a survey of practice in industrial organisations, Harvard University, Graduate School of Business Administration, USA. .

ROSSETTI, P. (1998) Gender difference in Email communication, *The Internet TESL Journal*, 4, 7.

ROUSSEAU, D. SITKIN, S. BURT, R. CAMERER, C. (1998) Not so different after all: a cross-discipline view of trust, *Academy of Management Review* 23, 3, pp393–404.

RUBIN, H. RUBIN, I. (1995) *Qualitative interviewing: the art of hearing data*, USA, Sage.

RUPPEL, C. HARRINGTON, S. (2000) The relationship of communication, ethical work climate, and trust to commitment and innovation. *Journal of Business Ethics*, 25, pp313-328.

RUSSELL, A. COHEN, L. (1997) The reflective colleague in e-mail cyberspace: a means for improving university instruction, *Computers & Education*, 29(4), 137–145.

- RUTTER, D. STEPHENSON, G. (1979) The role of visual communications in social interactions, *Current Anthropology*, 20, 1, pp124–125.
- RYAN, F. COUGHLIN, M. CRONIN, P (2009) Interviewing in qualitative research, the one-to-one interview, *International Journal of Therapy and Rehabilitation*, 16, 6, pp309-314.
- SALLIS, P. KASSABOVA, D. (2000) Computer-mediated communication, experiments with e-mail readability, *Information Science*, 123, pp42-53.
- SAUNDERS, M. LEWIS, P. THORNHILL, A. (2000) *Research methods for business students*, 2nd edition, UK, Prentice Hall.
- SCHEIN. E. (1985) *Organisation culture and leadership*, USA, Jossey-Bass.
- SCHOBBER, M. CONRAD, F. (1997) Does conversational interviewing reduce survey measurement error? *Public Opinion Quarterly*, pp576–602.
- SCHOONHOVEN, C. (1981) Problems with contingency theory: testing assumptions hidden within the language of contingency 'theory', *Administrative Science Quarterly*, 26, pp349-377.
- SCHWANDT, T (1998) Constructivist, interpretivist approaches to human enquiry. In DENZIN, N. LINCOLN, Y (1998) *The landscape of qualitative research: theories and issues*, USA, Sage Publications.
- SEELEY, M. HARGREAVES, C. (2003) *Managing in the email office*, UK, Butterworth-Heinemann.
- SESHADRI, S. CARSTENSON, L. (2007) The perils of e-mail communications in non-profits, *Non-Profit Management and Leadership*, 18, 1, pp77–99.
- SHANNON, C. WEAVER, W. (1949) *The Mathematical Theory of Communication*, Illinois University Press.

- SHERRY, J. (2002) Media saturation and entertainment – education, *Communication Theory*, 12, 2, pp206-224.
- SHOME, R. HEGDE, R. (2002) Culture, communication, and the challenge of globalisation, *Critical Studies in Media Communication*, 19, 2, pp 172–189.
- SILLINCE, J. MACDONALD, S. LEFANG, B. FROST, B. (1998) Email adoption, diffusion, use and impact within small firms, a survey of UK companies, *International Journal of Information Management*, 18, 4, pp23`-242.
- SLOVIC, P. FISCHOFF, B. LICHTENSTEIN, S. (1977) Behavioural decision theory, *Annual Review of Psychology*, 28, pp 1–39.
- SOLINGEN, R. BERGHOUT, E. LATUM, F. (1998) Interrupts: just a minute never is, *IEEE Software*, 15, pp97-103.
- SOUCEK, R. MOSER, K (2010) Coping with information overload in email communication: evaluation of a training intervention, *Computers in Human Behaviour*, 28 pp1458–1466.
- SPENCER, L. RITCHIE, J. LEWIS, J. DILLON, L. (2003) Quality in quantitative evaluation: a framework for assessing evidence, *Cabinet Office, London*.
- SPINKS, N. WELLS, B. MECHE, M. (1999) Netiquette: a behavioural guide to electronic business communication, *Corporate Communications: An International Journal*, 4, 3, pp145-155.
- SPROULL, R. KIESLER, S. (1991) *Connections: new ways of working in the network*, USA, MIT Press.
- ST AMANT, K. (2001) Success in the International Virtual Office, in; JOHNSON, N. (2001) *Telecommuting and the Virtual Offices, Issues and Opportunities, USA, Hershey*.

- STEFFEN, J. (1999) The culture of communication and the communication of culture in the modern corporate environment, *Journal of Communication Management*, 4, 1, pp 77-85.
- STEVENS, G. McELHILL. J. (2000) A qualitative study and model of the use of e-mail in organisations, *Internet Research: Electronic Networking Applications and Policy*, 10, (4), pp271–283.
- STEVENS, P. SCHADE, A. CHALK, B. SLEVIN, O. (1993) *Understanding Research*, UK, Champion Press.
- STRAUSS, A. CORBIN, J. (1990) *Basics of qualitative research: grounded theory procedures and techniques*, UK, Sage.
- SUMECKI, D. CHIPULU, M. OJIAKO, U. (2010) Email overload, exploring the moderating role of the perception of email as a 'business critical' tool, *International Journal of Information Management*, pp1-8.
- SUSSMAN, S. SPROULL, L. (1999) straight talk: delivering bad news through electronic communication, *Information Systems Research*, 10, pp150-166.
- SZÓSTEK, A. (2011) Dealing with my emails: latent user needs in email management, *Computers in Human Behaviour*, 27, pp723-729.
- TASSABEHJI, R. VAKOLA, M. (2005) Business email: the killer impact, *Communications of the ACM*, 48, 11, pp64-70.
- TAVAKOLIAN, H. (1995) Electronic mail: an issue of privacy versus property rights, *Management Research News*, 18, 8 pp40 – 49.
- TAYLOR, H. FIELDMAN, G. LAHLOU, S. (2005) The impact of a threatening e-mail reprimand on the recipient's blood pressure, *Journal of Managerial Psychology*, 20, 1, pp43-50.

- THOMAS, D. (2003) Phones 4U bans internal email, <http://www.computerweekly.com/news/2240052651/Phones-4u-bans-internal-email> accessed: 23/02/15 17:30.
- THOMAS, G. ZOLIN, R. HARTMAN, J. (2009) The central role of communication in developing trust and its effect on employee involvement, *Journal of Business Communication*, 46, 3, pp287-310.
- TIMS, A. (2011) Managing your emails, in *The Saturday Guardian*, 09/07/2011 pp4.
- TOSI, H. SLOCUM, J. (1984) Contingency theory: some suggested directions, *Journal of Management*, 10, 1, pp26.
- TOURANGEAU, R. RIPS, L. RASINSKI, K. (2000) *The psychology of survey response*, UK, Cambridge University Press.
- TRICE, H. BEYER, J. (1984) Studying organisational cultures through rites and ceremonies, *Academy of Management Review*, 9, 4, pp633–669.
- TREVINO, L. LENGEL, R. DAFT, R. (1987) Media symbolism, media richness, and media choice in organisations, *Communication Research*, 14, 5, pp553–574.
- TSUGAWA, S. OHSAKI, H. IMASE, M. (2012) Estimating message importance using inferred inter-recipient trust for supporting email triage, *Information and Media Technologies*, 7, 3, pp1073-1082.
- TUCKETT, A. (2005) Applying thematic analysis theory to practice: a researcher's experience, *Contemporary Nurse*, 18, pp75-87.
- UCU (2014) Pay Scales, www.ucu.org.uk Accessed 09:00 25/07/2014.
- UTLEY, A. (1997) Abusive e-mails ignite work fury, *Times Higher Education Supplement*, 20 May, p1.

VAN DEN HOOFF, B. GROOT, J. DE JONGE, S. (2005) Situational influences on the use of communication technologies, a met-analysis and exploratory study, *Journal of Business Communication*, 41, 2, pp 4–27.

VAN DEN HOONAARD, W. (2001) Is research ethics review a moral panic? *Canadian Review of Sociology*, 38, 1, pp19-36.

VIDGEN, R. SIMS, J. POWELL, P. (2011) Understanding e-mail overload, *Journal of Communication Management*, 15, 1, pp84–98.

VROOM, V. YETTON, P. (1973) *Leadership and decision making*, USA, Pittsburgh University Press.

WALKER, C. (2011) *Making assumptions explicit*, www.allbusiness.com accessed: 27/09/11 17:00.

WARD, M. (2013) Why your inbox fills with bacn instead of spam, www.bbc.co.uk/news. Accessed 09:40 22/03/2013.

WEBER, R. (1990) *Basic content analysis*, USA, Sage.

WESTLING, D. (2001) Gartner finds U.S. vacationers addicted to e-mail. Survey shows 42 percent of users check business e-mail on vacation. [www.http://www.gartner.com/5_about/press_room/pr20010702a.html](http://www.gartner.com/5_about/press_room/pr20010702a.html). Accessed: 23/03/15 11:00.

WHITING, L. (2008) Semi-structured interviews: guidance for novice researchers, *Nursing Standard*, 22, 23, pp35–40.

WHITTAKER, S. SIDNER, C. (1996, 1997) Email overload: exploring personal information management of e-mail, *CHI*, 96 April 13–18.

WHITTAKER, S. BELOTTI, V. GWIZDKA, J. (2006) Email in personal information management, *Communications of the ACM*, 49, pp68–73.

WIIO, B. GOLDHABER, G. (1993) *Organizational communication, 6th edition*, USA, McGraw-Hill.

WOODWARD, J. (1965) *Industrial organisation: theory and practice*, UK, Oxford University Press.

WOLCOTT, H. (1988) Ethnographic research in education. In JAEGER, R. (Ed) (1998) *Complementary methods for research in education*, pp187–249, USA, American Educational Research Association.

WOLCOTT, H. (1992) Posturing in qualitative enquiry. In LECOMPTE, M. MILLROY, W. PREISSLE, J. (Eds) (1992) *The handbook of qualitative research in education*, pp3–52, USA, Academic Press.

YATES, J. ORLIKOWSKI, W. (1992) Genres of organisational communication: a structural approach to studying communications and the media, *Academy of Management Review*, 17, 2, pp299-326.

YELL, S. (2003) New for old? Converging media and e-mail practices in the workplace, paper presented at ANZCA03 Conference, Brisbane, July 2003.

YERXA, E, J (1991) Seeking a relevant, ethical, and realistic way of knowing for occupational therapy, *American Journal of Occupational Therapy*, 45, 3, pp199-204.

YOUNG, D. (1995) The relationship between electronic and face-to-face communication and its implication for alternative workplace strategies, *Facilities*, 13, 6, pp20–27.

YU, F. YU, H. (2001) Incorporating e-mail into the learning process: its impact on student academic achievement and attitudes, *Computers & Education*, 38, pp117–126.

Appendix A Survey Instrument

PhD Thesis Questionnaire

Ben Silverstone (benjamin.silverstone1@smu.ac.uk)

Thank you for taking the time to complete this questionnaire. This questionnaire will form the main part of my PhD study into the use of email in Welsh Colleges. This study is being carried out entirely independently of the FE sector and therefore I appreciate you taking the time to answer the following questions. The study relies on gathering as many responses as possible in order to see whether changes in email behaviour may be beneficial all responses are confidential and any analysis will not enable readers to identify individuals. Please answer all questions as fully as possible. Your responses are essential in the success of my research. It is anticipated that the questionnaire will take at most 15 minutes to complete so please only start when you have the time to complete it fully. Please accept my thanks in advance for your assistance.

There are a total of 30 questions in 4 sections to complete-Please ensure you click next and finally 'finish' rather than closing the survey. Any incomplete responses will be deleted and your input will be lost Some technical issues have been reported progressing from page 2 to 3, if this is the case click back on your browser and try again

What do you believe are the main drawbacks to using email?

What do you believe are the main benefits of using email?

On average, how many emails do you send in a day?

- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71-80
- 81 +

How has the volume of sent messages changed in recent years?

- Increased
- Decreased
- Stayed the same

On average, how many emails do you receive in a day?

- 0-10
- 11-20
- 21-30
- 31-40
- 41-50
- 51-60
- 61-70
- 71-80
- 81 +

How has the volume of received messages changed in recent years?

- Stayed the same
- Increased
- Decreased

How much time per day do you spend dealing with email?

In an average work day, how many emails do you believe are manageable to send?

In an average day, how many emails do you believe are manageable to receive?

Would you like to change your email usage?

Please explain your answer

- Yes _____
- No _____

In general, do you consider the impact on the recipient before sending emails?

Please give reasons for your answer

- Yes _____
- No _____

Do you waste any time using email?

- No
- Yes

If yes, please provide a considered estimate of the percentage of your time that is wasted when using email at work

Please provide an example of how time is wasted

Without naming specific individuals, please identify if you have ever received emails from colleagues or managers in your College that you would consider to be:

- Inappropriate content
- Aggressive tone
- Bullying
- Content you found offensive
- Sent by the sender to avoid face-to-face contact
- Poorly written
- Hastily composed without due consideration
- Content that is not relevant to you
- The same message containing the same content from multiple sources
- None of the above

Choosing the issue you feel is most important from those above, please describe an example.

Please rate the following on how much impact they have on your decision to use email to communicate.

Use the sliders to indicate on a scale of 1-10 with 1 representing no impact and 10 representing significant impact

Relationship with the recipient

Physical distance between you and the recipient

Whether you are trying to communicate with a group or individual

Time pressure that you may be under

How comfortable the recipient is with the use of email to communicate

The possibility that the recipient may ask you further questions requiring more email messages in the future

Whether email will allow you to communicate your message in the most effective way

Consideration of how the recipient has responded to email communication in the past

Whether a written record will be required

Whether the content of what you wish to communicate is suitable for email

Please rate the following on how useful each would be in maximising effective email communication

Use the sliders to indicate on a scale of 1-10 with 1 suggesting it would not be useful and 10 suggesting it may be very useful

Relationship with the recipient

Physical distance between you and the recipient

Considering whether you are trying to communicate with a group or individual

Considering any time pressure that you may be under

Recognising the possibility that the recipient may ask you further questions requiring more email messages in the future

Considering how comfortable the recipient is with the use of email to communicate

Considering whether email will allow you to communicate your message in the most effective way

Consideration of how the recipient has responded to email communication in the past

Identifying whether a written record will be required

Considering whether the content of what you wish to communicate is suitable for email

Have you attended training on the use of email in the past 12 months?

If yes, please briefly describe the nature of the training

- Yes _____
- No

If you did attend training, was it appropriate for your role?

If no, please describe why it was not appropriate.

- Yes
- No _____

Do you believe that email usage will continue to grow in the future?

How do you think user behaviour could be changed to make email more efficient?

Are there any features of email systems that you feel are barriers to you using them effectively?

It has been established that relationship has a bearing on effective communication. Please identify what you consider to be a good working relationship

Please select your College

- Coleg Ceredigion
- Coleg Gwent
- Merthyr Tydfil College
- Coleg Sir Gar
- Neath Port Talbot College
- Grwp Llandrillo Menai
- Pembrokeshire College
- Yale College Wrexham
- Cardiff and Vale College

- Deeside College
- Coleg Morgannwg
- Ystrad Mynach College
- Gower College Swansea
- YMCA Community College
- Coleg Powys
- Coleg Harlech (WEA North)
- Bridgend College
- St Davids Catholic College
- WEA South Wales

Please select the category that best represents your employment

- Senior Management (Academic and Business Support)
- Middle Management (Academic and Business Support)
- Business Support (please identify your role) _____
- Academic (please identify your main discipline) _____

Please indicate your age group

- Under 20
- 21-30
- 31-40
- 41-50
- 51-60
- Over 60

Please indicate your gender

- Male
- Female

How aware are you of policy documents relating to email usage within your College?

- Very aware-I have read the documents
- Aware of rules within the policy documents
- Aware of the existence of policies
- Did not know policies were in existence

Please provide an example of the impact that policy rules have on your day to day usage of email

Appendix B Published Papers

SILVERSTONE, B. (2012) Developing a relationship centered communication framework for email selection and usage – a literature review, *World Journal of Social Sciences*, 2, 7, pp257-269

SILVERSTONE, B. (2012) Towards a New Communication Framework for the Management of Email Selection and Usage – A Literature Review Athens: ATINER'S Conference Paper Series, No: BUS2012-0183

SILVERSTONE, B. (2014) The influence of role on email usage profiles, a study of the welsh further education sector, *The Macrotheme Review*, 3, 2 pp16-37

SILVERSTONE, B (2014) Changes and developments in email usage and overload during a 20 year period, *International Journal of Business and Management Studies*, 3, 1, pp497 – 514

SILVERSTONE, B. (2014) Do job groups influence email usage in a similar way as roles? A study of Academics in the Welsh Further Education Sector, *Proceedings of International Social Sciences and Business Research Conference 4-5 December 2014, Hotel Himalaya, Kathmandu, Nepal, ISBN: 978-1-922069-65-8*

SILVERSTONE, B. (2015) The impact of micro-cultural roles on email usage, a study of business support jobs, *International Journal of Business and Management Invention*, 4, 2, pp23-35