

"ON THE INTERNET NOBODY KNOWS
YOU'RE AN EXPERT":
INFLUENCE AND ATTITUDE CHANGE IN
COMPUTER-MEDIATED COMMUNICATION

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ABSTRACT

The focus of this research is on the use of computers as a communication medium, specifically for social purposes, and considers how computer-mediated communication (CMC) might affect persuasion and attitude change processes.

The studies are organised around the framework of the classical message learning approach to persuasion (the effects of the source, message, channel and recipient), and the process of persuasion is considered, as well as the final outcome (attitude change).

In order to give a more complete view of the influence process, both quantitative and qualitative approaches were taken. Also, both laboratory-based and field-based studies were carried out, which gives greater ecological validity to the research.

Five studies were carried out, considering different aspects of the influence process, ranging from examination of source characteristics to the effects of the computer-based medium on discussions, and subsequent attitude change.

Although some attitude change was found, the medium (computer-based or face-to-face) appeared to have no real effect. However, it was found that the different media had an effect on other aspects of the influence process, particularly on perceptions of the source, and the actual discussion content.

An alternative theoretical approach is proposed, based on McGuire's reception yielding model, which provides an explanation of some inconsistencies in both the present and previous research. The reading of a CMC message follows a set sequence of stages, which allows it to be rejected without further processing at different points. Within this process, the information that is significant to the recipient changes, and acts as a weighting for following information. However, in a laboratory-based study this sequence is entered at different points, depending on the experimental focus, and so this process is altered or bypassed entirely, creating a bias towards different information. This would, therefore, need to be taken into account for the comparison of results.

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CHAPTER 1

INTRODUCTION

‘I think there is a world market for maybe 5 computers’

Ian Watson, Chairman of IBM, 1943

1.1 Background

Computer technology has developed rapidly since its beginnings, and nowhere is this clearer than in the growth of the Internet. In the mid-1960s Arpanet was devised as means of sharing files, with e-mail merely a useful by-product. Initially, computers were primarily the domain of science, engineering and business, but they have now become widely available and used in many homes. In 1998 approximately 40% of all US households owned a personal computer (Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998). Office for National Statistics (ONS) survey data from the same year showed that 9% (2.2 million) UK households accessed the Internet from home, which gives some indication of the numbers of personal computers within UK homes. By the 2nd quarter of 2004, this figure had increased to 52% (12.8 million) of UK households (ONS General Survey, 2004).

In turn, this technology has also become of considerable interest to psychologists, not only in terms of the new techniques it has made available, but also as a focus of research in itself. A wide variety of issues have been looked at, ranging from organisational uses, such as productivity and decision making effects, to more individual effects, such as interpersonal relationships. This is discussed in greater detail in Chapter 2.

This research focuses on the use of computers as a communication medium. Interpersonal communication has become the dominant use of the Internet at home

(Kraut et al, 1998), and data from the ONS indicated that in October 2003 84% of Internet use was for email, and 18% for chat rooms (ONS General Survey, 2004). Nua Surveys (2000) suggested there were 304.36 million Internet users worldwide. Access to the Internet would appear to be increasingly simple and available, with users gaining access not only from home or the workplace, but also in public libraries, Internet shops or cafes, and even via WAP-enabled mobile phones and digital TV (ONS General Survey, 2004).

It is important to look at the effects communication technology may have on various aspects of communication, as it cannot be assumed that interaction will be the same regardless of medium. Joinson (1998) points out that there is an accumulating body of research evidence that suggests that behaviour on the Net, whether computer-mediated communication (i.e. newsgroups or chatrooms), email, WWW surfing or WWW homepages, differs from similar behaviour off-line.

There are precedents for the unanticipated effects of new communication technology. A similar situation arose with the introduction of telegraph (Standage, 1998) and also the telephone (Kiesler & Sproull, 1992), technologies which extended social contacts, attention and interdependencies beyond the patterns determined by physical proximity. These effects are discussed in greater detail in Chapter 2.

The focus of this research is on social uses of computer-mediated communication (CMC). Although CMC was originally thought of as a purely business medium, used mainly by organisations, and such use is widespread, it is also now used extensively for personal, social purposes. There are a number of services available which allow people to come together to discuss common interests. All that is required is a computer with a modem, and software to allow messages to be read. Some services have subscribers, and provide personal email as well as access to conferencing (for example, CiX in the UK), while others are simply groups of conferences (for example, Usenet).

Usenet is possibly the most well known of such conferencing systems. Baym (1998) describes it as linking millions of users in an enormous stream of topical chatter known as newsgroups. It is estimated that there are more than 13,000 hierarchically organised 'newsgroups', each of which operates as an open forum for discussion of a specific interest. Topics under discussion range from the trivial to the serious. It could be said that whatever the interest, there is a discussion group for it. The following examples give an indication of the range of groups that exist:

Alt.politics.elections
Rec.juggling
Rec.food.chocolate
Soc.support.depression.crisis

These newsgroups are fluid, and under constant change. Their defining characteristic is that they are communities of interest rather than of location. As Kraut et al. (1998) point out, newsgroups and chatrooms put people in contact with a pool of new groups, but they are typically organised around specific topics, activities, or demographics and rarely revolve around local community and close family and friends.

“...although they may share a common interest and sociocultural contexts, these participants would never interact were they not on-line” (Baym, 1998, p.48)

It should be noted that newsgroups can be more than a source of entertainment, they can also provide information. As Constant, Sproull, & Kiesler (1996) point out, computer networks make it relatively easy to ask distant acquaintances for advice via email. In fact, it is also possible to ask strangers for advice, simply by posting a message with a question.

Wherever people talk together, either to discuss common interests or to seek information, there is the opportunity for attitudes to be formed and changed. It cannot

be assumed that the computer medium has no impact on this, particularly as the medium has been shown to affect behaviour, as mentioned previously. It is therefore important to consider how CMC might affect attitude change.

The focus of this research is on the social use of CMC, specifically for social interaction, and on how this medium might affect persuasion and attitude change processes.

1.2 Methodological Issues

Some of the methodological issues affecting the structure of this research are discussed below, specifically the different approaches to analysis that were taken.

1.2.1 Quantitative and Qualitative Analysis

Persuasion and attitude change is considered throughout this thesis as a process rather than simply looking at attitude change itself as the end result.

The majority of research in this area takes a quantitative approach to analysis, which has advantages in that it allows for considerable control over the variables under consideration. For example, the amount of attitude change after exposure to a persuasive message can be measured in this way, and the impact of other variables can be systematically varied.

However, there are limitations to such an approach, in that it is somewhat restrictive in its focus. It leads to a tendency to concentrate on directly measurable effects of the computer-based medium on the persuasion process, such as direct attitude change, or direct evaluations of the source or the message by the recipient.

However, there may be other effects arising which are less direct, and therefore a different approach may be needed to examine these.

A qualitative approach allows consideration of other, possibly more indirect, effects, which may have an impact on directly quantifiable aspects. As this research is concerned with online discussions, content analysis (incorporating both qualitative and quantitative elements) is an appropriate method, as it allows consideration of aspects such as actual content, and language style used, which could have an impact on the outcome of any discussion. This is discussed in depth in Chapter 6.

The use of both quantitative and qualitative aspects means that different aspects of the issues involved can be considered.

1.2.2 Laboratory-based and Field Studies

These studies also combine both lab-based and field-based approaches. As computer-mediated communication is not confined to laboratory type situations, it is possible that research done solely in this way would be lacking in ecological validity. Indeed, such studies could provide very different results than would be found if a more 'real world' approach was taken, an issue that is discussed in more depth in Chapter 2.

An attempt to deal with these issues is made here through the use of field studies, discussed in depth in Chapters 7 and 8, which act as complementary data to the lab-based studies. Furthermore, these studies also provide a basis of comparison to allow consideration of the extent to which such lab studies are ecologically valid, and hence may be used in order to extrapolate further.

1.3 Structure of the Thesis

The studies discussed in this thesis are organised around the framework of the classical message learning approach to persuasion, which considers the effects of the source, the message, the channel and the recipient (this is discussed in greater depth in Chapter 3). In other words, this approach considers ‘Who says what to whom and with what effect’ (Lasswell, 1948, in Hovland, Janis & Kelley, 1953), and the various studies discussed here focus on different parts of this formula.

It will be seen within the final chapters that the variables considered in this research cover not only some of the effects of the main forms of CMC, these also cover most of the stages of the attitude changing effects of communication suggested by several classical and contemporary theoretical approaches. In order for this to be seen clearly, the results are drawn together in Chapter 9, to provide a clear overview of the findings. In Chapter 10 the findings are discussed in the context of the main theoretical approaches discussed in Chapter 3, and an alternative theoretical approach is proposed.

1.4 Summary of Key Points

- This research looks at the social uses of computer-mediated communication (CMC), specifically persuasion and attitude change processes.
- The studies follow Hovland et al.’s (1953) formulation of ‘who says what to whom and with what effect’.
- Both quantitative and qualitative approaches are used within this research, in order to gain a fuller understanding of the processes involved.
- The research includes both laboratory-based and field studies, so that greater ecological validity is attained.
- Past literature on CMC research is discussed in the following chapter.

CHAPTER 2

A REVIEW OF THE COMPUTER-MEDIATED COMMUNICATION LITERATURE

2.1 Introduction

As the previous chapter indicates, the use of computers for communication is becoming increasingly widespread. It is not surprising, therefore, that there has also been considerable research interest in this area, looking at the uses and effects of this new technology in a variety of situations. This chapter will give a brief overview of the literature on computer-mediated communication (CMC), and also discuss the key theoretical approaches.

2.2 CMC Technology

Before discussing the research on CMC it is important to clarify what this is, as the terms 'Internet' and 'CMC' refer to a range of technologies. These include, but are not limited to, email, chat, asynchronous discussion groups (e.g. Usenet), multi-user dungeons (MUDs), video and voice communication, and the World Wide Web. A common element to all of these is that they allow the transmission of information between computers, although the form this takes varies.

Briefly, these are the key characteristics of the technologies listed above:

- Email – text-based, asynchronous, can be one-to-one or one-to-many
- Chat – synchronous (real-time) messaging, can be one-to-one or one-to-many
- Asynchronous discussion groups – many-to-many message lists

- MUDs – text-based virtual environments, a development from role-playing games
- Video/voice communication – the use of webcams to transmit voice and pictures
- World Wide Web – content delivery service, somewhat less interactive than other forms

This is not an exhaustive list of the technologies, and with new developments more opportunities for distant communication will become available.

It is not surprising that there has been considerable interest in CMC, and the following section looks at the range of research that has been carried out. As the present research focuses on interactions using the first three types of technology listed, this review will focus on research within the literature that is also chiefly concerned with these types.

2.3 Overview of Research

Research into CMC is a rapidly growing field, with studies covering a wide range of issues, including consideration of the various uses of CMC, and the effects of the technology. It was suggested by Siegel, Dubrovsky, Kiesler, and McGuire (1986) that the research on the behavioural and social effects of CMC falls into four general categories, namely technology assessment studies, organisational studies, technical capabilities studies, and social psychological studies. In other words, the categories they consider are concerned with the potential impact of computer networks on society or on particular institutions, such as libraries (technology assessment studies), the potential impact on organisational issues, such as job performance (organisational studies), the relative ease or difficulty with which particular communication operations can be learned or carried out (technical capabilities studies), and issues concerned more with the social or organisational context CMC operates in (social psychological studies). However, it could be argued that the first three categories are

all concerned with the explicit technical effects of this technology, while the fourth category is more concerned with the unanticipated effects.

An alternative, simpler categorisation is to consider studies in terms of what Kiesler and Sproull (1992) refer to as 1st and 2nd level effects. Briefly, 1st level effects are those anticipated technical benefits, such as planned efficiency or productivity gains, which would justify investment in new technology, whereas 2nd level effects are more indirect, and come about from behaviour that the technology makes feasible, and by how people use these options. A good example of this is the introduction of the telephone, which was originally believed to be useful only for business purposes, but came to extend social contacts, making it possible to maintain relationships, even at a great distance, with considerable ease. In effect, those studies which consider the anticipated technical effects, such as planned efficiency or productivity gains, which would generally be categorised by Siegel et al. (1986) as falling under one of the first three categories, would be 1st level effect studies. Those which came under the heading of social psychological studies would be more likely to be 2nd level effect studies, considering the indirect effects, that is those caused by the behaviour that the technology makes feasible, and by how people use these options. It should be noted that the division between 1st and 2nd level effect studies is not an absolute one, as a study may well consider both types of effects.

Generally, studies within the Kiesler & Sproull (1992) 1st level effect category focus on organisational contexts and uses. A considerable number of studies have looked at group decision making (Benbunan-Fich, Hiltz & Turoff, 2002; Kiesler & Sproull, 1992; Kahai & Cooper, 2003; Kiesler et al., 1984; Reid, Ball, Morley & Evans, 1997; Reynolds, 1994; Thompson & Coover, 2002), and problem solving (Adrianson & Hjelmquist, 1991, 1999; Strauss, 1996). The use of Group Decision Support Systems (GDSS) has developed as a means to support the formulation and solution of unstructured problems by groups. Different configurations of the system promote different problem solving approaches, but one common characteristic is that the interaction can be anonymous, so that in principle, ideas can be judged solely on their inherent worth, and not on the reputation or rank of the proposer (Jessup et al., 1990). Later research has looked at these systems in more depth, looking at aspects

such as the effects of using mixed motive tasks (Barkhi, Jacob, Pipino & Pirkul, 1998; Barkhi, Jacob & Pirkul, 1999). Related to these are studies looking at judgement tasks (Strauss & McGrath, 1994) and choice shift, for example on the Stoner choice dilemma problems (Matheson & Zanna, 1989).

Another widely studied task within this area is idea generation, which is often an early activity during group problem and solution formulation (Strauss & McGrath, 1994; Valacich, George, Nunamaker, & Vogel, 1994; Valacich, Paranka, George, & Nunamaker, 1993; Valacich, Wheeler, Mennecke, & Wachter, 1995). Many of these studies consider whether CMC is a more effective medium (that is, whether more or better ideas are produced in this way), and whether it promotes equality within the group. These effects will be discussed further later.

Within the general category of Kiesler & Sproull (1992) 2nd level effects, studies have looked at interpersonal communication, which can be thought of as more social rather than task-oriented (Parks & Floyd, 1996; Walther, 1992; Walther, 1996), and which is also referred to as social interaction (Mabry, 1996; Schmitz & Fulk, 1991; Smith, McLaughlin & Osborne, 1996; Walther, Anderson, & Park, 1994). As stated previously, these studies are more concerned with the unanticipated effects that CMC have on behaviour, for example the types of relational patterns that are produced, and the extent to which the medium is found to be very personal, rather than impersonal. It might appear at first that such an apparently restrictive medium is necessarily impersonal, but this view will be considered in more depth later. Indeed, it has been observed that people using CMC, as compared to other forms of communication respond more openly and conform less to social norms and to others (Kiesler & Sproull, 1992). It is worth noting Standage's (1998) comments on the telegraph, which he views as a close parallel to the modern development of the Internet.

“Despite the apparently impersonal nature of meeting by wire, it was in fact an extremely subtle and intimate means of communication” (Standage, 1998, p.123).

There has been a change of focus in recent research. According to Bargh (2002),

“researchers are no longer talking about simple main effects of Internet use on people or groups or communities in general, but appear to have moved on to a more sophisticated and complex analysis” (p3).

An area of particular interest concerns CMC language. Research here has looked at the use of paralanguage in CMC, with the use of emoticons (Derks, Bos & Von Grumbkow, in press; Walther & D’Addario, 2001), and also at gender-linked language (Jaffe, Lee, Huang, & Oshagan, 1999; Savicki & Kelley, 2000; Savicki, Kelley & Oesterreich, 1999; Sierpe, 2005; Thomson & Murachver, 2001). There has also been other gender related research, as it has been found that sex differences are meaningful online, in spite of the limited cues to this available, and research has looked at gender differences in the style and content of emails to friends (Colley & Todd, 2002), gender harassment online (Herring, 1999), the impact of gender inequalities in CMC (Yates, 2001), and the effect of the sex of Web site authors on perceptions of credibility (Flanagin & Metzger, 2003). This type of research also reflects a move away from the early utopian view of CMC as an equalising medium, and towards a more balanced perspective.

An area of particular interest within the context of the current research is attitude change and social influence in the context of CMC. There have been contradictory findings in this area, with some studies finding that there is more opinion change FTF compared to CMC (Adrianson & Hjelmquist, 1985, in Adrianson, 2001; Adrianson & Hjelmquist, 1991, 1999) and others finding the opposite effect, with more opinion change in CMC groups (Adrianson, 2001; Hiltz et al, 1985; Siegel et al, 1986). Research has also looked at issues such as the effects of language style on persuasiveness (Adkins & Brashers, 1995), and the effect of self-awareness in CMC on persuasion (Matheson & Zanna, 1989). Different theories of persuasion have been applied to the CMC context, and these will be discussed further in the following chapter.

It is becoming apparent that the effects of the Internet are dependent on how the unique qualities of the communication modes interact with the particular characteristics and goals of the individuals or groups using them (Bargh, 2002; Reid et al., 1997). Computer systems are not helpful in all situations or for all problems (Jessup, Connolly, & Tansik, 1990). It is therefore important to consider what has been found concerning the effects of CMC to date, although a distinction should be made between the short-term and long-term effects (Adrianson & Hjelmquist, 1991). It has been found that although CMC users may have some initial problems with the technology, they can quickly adapt to the medium (Newlands, Anderson & Mullin, 2003).

There has been considerable disagreement within the literature as to the effects of CMC, which sometimes appear to contradict each other. One anticipated effect was that of productivity gains, for example, shorter times to reach decisions, or an improved quality of decision. However some studies have shown no overall gains in organisational productivity (Strauss & McGrath, 1994), some have found a gain (Valacich et al., 1993; Valacich et al., 1995; Valacich et al., 1994), and others have found a loss of productivity (Kiesler et al., 1984; Reid, Malinek, Stott & Evans, 1996). In fact, as mentioned previously, some studies have found that there is actually a complex interaction between CMC and the task being performed, which influences whether any productivity gain is found (Hollingshead, McGrath, & O'Connor, 1993; Jessup et al., 1990; Reid et al., 1997). For example, if information necessary to solve a problem is dispersed over a group, it may be gathered more effectively via CMC. However, there is evidence to suggest that CMC groups have difficulty in maintaining mutual knowledge within the group (Thompson & Coovert, 2003), and so this would have an effect on the ease with which information can be gathered and a decision reached.

Early research suggested that an important effect of CMC would be equalisation of participation. Indeed, this was put forward as one of the major advantages of this technology, particularly for group decision making (Jessup et al., 1990). Early research did find support for equalisation (Allen, 1995; Kiesler & Sproull, 1992; Kiesler et al., 1984; Siegel et al., 1986; Spears & Lea, 1994; Strauss,

1996; Taha & Caldwell, 1993), although it has been argued that this effect is questionable, as access to the network initially can be highly selective, as it is dependent on regular use of a computer system (Mantovani, 1994). It has been argued by Spears and Lea (1994) that equalisation may actually be due to all participants being reduced to a particular baseline, increasing the danger of floor effects. In support of this, it should be noted that it does appear to take longer to exchange information in CMC (Sproull & Kiesler, 1991). Furthermore, later research has found little support for communication equality from the use of CMC (Adrianson & Hjelmquist, 1999), and that there is an effect of gender on this (Adrianson, 2001)

Another effect found is that of uninhibited behaviour. It has been suggested that CMC leads to more uninhibited communication, as there is a lack of the social context cues which would otherwise remind people of the prevailing social norms, and attention tends to be directed away from others. There is some evidence to support this (Kiesler et al., 1984; Siegel et al., 1986; Spears & Lea, 1994; Taha & Caldwell, 1993), although this is not always the case (Mantovani, 1994). It has been suggested that the anonymity available through systems serves to detach individuals from their own comments, and from others, and it is thought that this leads to a reduction in normal restraints on behaviour.

It was thought that CMC was an impersonal, task-oriented medium. Rice and Love (1987) argue that CMC is

“less friendly, emotional, or personal and more businesslike, or task oriented”
(p.88)

However, CMC is widely used for social purposes, and Bargh (2002) points out that

“Use of Internet communication modes for purposes of social interaction continue to grow at a rapid rate” (p.7)

It would appear that the presumed impersonal qualities of CMC are actually a product of certain specifiable conditions and kinds of partners, rather than a quality of the

medium itself (Walther & Burgoon, 1992; Bargh, 2002). It would appear that findings suggesting it is impersonal do not take into account the length of time a group is given to interact. Walther and Burgoon (1992) found that groups developed relationally in the same way as other groups meeting face-to-face, but that this process took longer when using CMC. This is supported by studies which have found that CMC is far less impersonal than previously thought (Kiesler et al., 1984; Parks & Floyd, 1996; Rice & Love, 1987; Walther, 1992; Walther, 1996; Walther et al., 1992). It would appear that CMC groups adapt to the medium, and find ways to overcome the relative shortcomings of the technology (Walther & D'Addario, 2001).

Earlier research suggested that there was a lack of any widely shared norm governing the use of CMC. For example, Kiesler, Siegel, and McGuire (1984) have argued that as electronic communication has been developed and used within the distinctive subculture of computing professionals, its norms are infused with that culture's special language and its implicit rejection of organisational conventions. Hence there are few shared standards for salutations, for structuring formal versus informal messages, or for adapting content to achieve both impact and politeness. This argument seems rather to contradict itself. On the one hand it claims that there are no governing norms, but then supports this point with the idea that the norms of a computing subculture are in play. However, later research has shown that there are in fact general standards of expected behaviour within groups, and new members are expected to abide by these (Argyle & Shields, 1996), and those who fail to meet these standards are subjected to criticism (Smith, McLaughlin, & Osborne, 1994). Furthermore, research by Postmes, Spears, and Lea (2000) found that CMC groups tend to be highly normatively regulated, and actually increasingly conform to group norms over time.

Herring (2002) suggests that the most important cumulative finding of research over the past 15 years is that CMC varies according to the technologies on which it is based, and according to its contexts of use. Consideration of the literature would appear to support this.

There has also been considerable work on theoretical approaches to understanding CMC, and some of the key approaches are discussed in the next section.

2.4 Theoretical Approaches

There have been a number of different theoretical approaches to CMC, and the key approaches can be categorised (following Joinson, 2003) into the cues-filtered-out approaches, and self-focus models.

2.4.1 Cues-filtered-out approaches

There are two key approaches to be considered here, the reduced social cues perspective, and social information processing theory.

The most well developed cues-filtered-out approach is the reduced social cues perspective, the starting point of which is what is lost when communication is technologically mediated (Kiesler & Sproull, 1992; Kiesler et al., 1984; Lea, 1991; Parks & Floyd, 1996; Reid et al., 1996; Reid et al., 1997; Spears & Lea, 1994; Strauss, 1996; Strauss & McGrath, 1994; Taha & Caldwell, 1993; Walther, 1992; Walther, 1996; Walther & Burgoon, 1992; Walther et al., 1994). It is suggested that social context cues are attenuated or lost, and this then reduces people's ability to adjust the target, tone and verbal content of communication according to their interpretation of the situation. One outcome of this would be a tendency towards more uninhibited behaviour, as weak cues would mean people's behaviour would be only weakly regulated.

Another outcome should be higher levels of extreme behaviour. There is some support for this, as Kiesler and colleagues found more group polarisation (shifting to

the extreme end of a decision-making scale) in groups that had discussions electronically and anonymously, compared to FTF discussion.

There is evidence to suggest social cues are reduced in CMC. Sproull & Kiesler (1986), in their study of the email system of a large US organisation, found that relatively little information about an unknown (to the recipient) person was transmitted (such as age, gender, race and so on). However, this approach has been challenged in the literature (Parks & Floyd, 1996; Reid et al., 1996; Reid et al., 1997; Walther, 1992; Walther, 1996; Walther & Burgoon, 1992) as it does not explain findings that CMC can be personal in nature. Also, it does not take into account the attempts by users to bring in paralanguage through use of emoticons.

Further criticism of such cues-filtered-out approaches comes from the social information processing model. Walther (1992) argues that the loss of visual cues is a disadvantage to be overcome over time, and there is evidence to suggest that linguistic and typographical cues develop to aid this.

Walther et al (1994) carried out a meta-analysis of 21 experiments, and found that there were higher levels of socio-emotional communication in CMC groups without time restrictions compared to those groups which were time restricted. Furthermore, less difference was found between CMC and FTF when there were no time restrictions. This confirms one of the key predictions of the model, that over time the amount of social information communicated via CMC converges with the amount sent FTF. There is one simple possible explanation for this – it takes longer to type than it does to speak.

Furthermore, as mentioned previously, there is evidence to suggest that users adapt to the medium, and develop linguistic and typographical cues as a form of paralanguage (Walther, 1992; Walther & Addario, 2001). The clearest example of this is the use of emoticons such as :-) (smile), ;-) (wink), and :- ((sad) to clarify the meaning of the text. This type of paralanguage, although apparently simple, does take some time to learn to use effectively, and it has been shown that the amount of paralanguage used increases with experience with CMC (Utz, 2000).

However, there are criticisms of this model, and the key theoretical predictions were actually refuted by Walther's (1995) study, where he found that CMC was significantly more social than FTF, and the developments over time were not in the predicted direction in most cases.

Walther (1996) has developed the model further, and suggests that hyperpersonal communication can occur, where CMC surpasses the level of affection and emotion of parallel FTF interactions. He argues that two critical features of CMC, namely reduced communication cues and potentially asynchronous communication, gives users the opportunity for selective self-presentation, so that they are able to manage and enhance the first impression they give. This can make CMC more attractive than FTF, and more socially desirable, and thereby gives rise to hyperpersonal communication. There is some evidence to support the hyperpersonal communication model (Hian, Chuan, Trevor & Detenber, 2004), although it is not entirely clear under what circumstances CMC will become hyperpersonal.

However, this model is still concerned with what is lost in CMC, a common factor within the cues-filtered-out approaches. There is an underlying assumption that the lack of visual cues means that there is a corresponding lack of social information. Spears & Lea (1992) point out that these theories assume that "what is social about being and behaviour is interpersonal interaction and literally being with others" (p.43). However, it should be noted that it is not actually necessary to meet face-to-face to belong to a group, or to identify with a group, and this is not taken into proper consideration within these theories.

Spears and Lea (1992) also point out that there are contradictory ideas within the reduced cues approach. Kiesler et al (1984) put forward a deindividuation explanation of uninhibited behaviour, arguing that CMC has some conditions important for deindividuation, namely anonymity, reduced self-regulation, and reduced self-awareness. Spears and Lea (1992) point out that deindividuation has been classically defined as the loss of identity and weakening of social norms and constraints associated with submergence in a group or crowd, and so this would

suggest the behaviour of CMC groups is anti-normative. However, Kiesler et al (1984) also suggest that there may be a computing subculture norm leading to uninhibited behaviour, an explanation that is difficult to reconcile with a deindividuation explanation. It can be seen from this that there are limitations to these approaches, and they do not provide the clearest explanation of CMC effects.

2.4.2 *Self-focus models*

An alternative approach was put forward by researchers who argue that the visual anonymity inherent in much CMC actually heightens people's self-focus, rather than diminishing it.

The basis for these models comes from work by Carver and Scheier (1987) which suggests that there are social and private aspects of the self. The social aspect consists of those parts of the self that are public, and open for evaluation and judgement by others, whereas the private aspects are available to the individual alone, unless they choose to share (for example, attitudes, values and feelings). When an individual is focused on the social aspects of self, this is termed public self-awareness, and this is likely to be evoked when an individual is in a situation where they are aware of being judged or evaluated. Heightened public self-awareness tends to lead to increased attempts at managing impressions and monitoring feedback. In contrast, if private self-awareness is heightened, behaviour that is based on internal motives or needs is evoked.

Matheson and Zanna (1988) looked at the impact of CMC on private and public self-awareness. They noted that the reduced social cues approach and deindividuation suggest self-awareness is reduced in CMC but they argued that the same results could be interpreted as evidence for heightened private and reduced public self-awareness. Their results would seem to support this view.

Further support comes from research showing that CMC users overestimate their contributions to discussions, compared to FTF, which suggests they may experience heightened private self-focus (Weisband & Atwater, 1999).

However, as Joinson (2003) points out, it is unclear in what conditions CMC use might encourage private self-awareness, and when it might be discouraged. This somewhat limits the usefulness of this approach in understanding the effects of CMC.

Another approach is based on social identity theory (Tajfel & Turner, 1979), which suggests that an individual's identity consists of both personal and social (from the groups to which an individual belongs) identities. This is the Social Identity Model of Deindividuation Effects (SIDE), developed by Reicher (1984). He argued that one of the consequences of reducing personal identifiability is an increase in the salience of the social identity, and this would in turn increase adherence to group norms. If the individuals concerned were also visually anonymous, this effect would be strengthened, as any intragroup differences would be minimised, and conversely intergroup differences would be strengthened. However, if individuals are isolated and visually anonymous, this should remove group boundaries, thereby reducing the salience of the social identity.

It has been argued that the restrictions of CMC may actually privilege more social levels of self-definition, as groups and categories (Spears & Lea, 1994). The reason for this is that cues to category membership may be both discrete (that is, simple cues), and either discreet (subtly communicated, sometimes in language style) or easily discerned (because they reflect shared and sometimes chronically salient features), whereas the individuating cues associated with personal identity are potentially infinite, complex, and much more abundant in the broader bandwidth medium of FTF communication (Spears, Postmes, Lea & Wolbert, 2002).

The SIDE model has two dimensions, a cognitive dimension which is concerned with the effect of anonymity on identity salience, because it influences the accessibility of contextually relevant identities, and a strategic dimension, concerned

with the actual expression of behaviour that is associated with contextually salient identities but that takes into account social constraints on behaviour.

There is growing evidence to support the predictions of the SIDE model, that the impact of group influence and social norms should be strengthened in anonymous CMC, to the extent these norms are salient (Lea & Spears, 1992; Postmes, Spears, & Lea, 2002; Spears et al, 1990, 2002), and also for the strategic aspect of SIDE (Spears, Lea, Corneliussen, Postmes & Haar, 2002). Evidence has also been found for the effect of norms as predicted (Postmes et al, 2000; Postmes, Spears, Sakhel, & De Groot, 2001).

There are some limitations to the SIDE model, and these have been highlighted by researchers within the SIDE research group (e.g. Spears et al, 2001, 2002). A key issue here is the focus on anonymity as the defining feature of CMC, without taking into full consideration other aspects of the medium, and this places limitations on the model in terms of its applicability to some CMC contexts. A further issue is that, as Joinson (2003) points out, the focus of much of the research is on the cognitive aspect of SIDE, rather than the strategic aspect. It should be noted, however, that this has been addressed to some extent in later research (for example, the Spears et al, 2002, study mentioned previously).

However, even with these limitations, it would appear that SIDE is able to predict some aspects of CMC behaviour, and it is hoped that future research will address these limitations.

2.5 Conclusions

Research on CMC covers a wide range of aspects, and the most important overall finding would appear to be that CMC varies according to the technologies on which it is based, and according to its contexts of use (Herring, 2002). Now that the technology has been available for some time, a clearer picture is emerging of what the

effects of CMC will be on its users. The utopian claims of earlier research have given way to a more balanced view of what this technology is, and how it can affect social life.

2.6 Summary of Key Points

- Computer-mediated communication (CMC) covers a wide range of technologies, but all of these allow the use of computers to transmit messages from one person to another, either individually or within groups.
- A range of uses were considered in terms of 1st level (anticipated technical benefits) and 2nd level (indirect) effects (Kiesler & Sproull, 1992).
- Key theoretical approaches were discussed, namely the cues-filtered-out approach, social information processing model, and the SIDE model.
- It is probable that there is a complex interaction between variables in CMC, including the task, participants, and familiarity with the medium.
- Now that the technology has been available for some time, the longer term effects of CMC are becoming clear.
- The following chapter evaluates some current theories of persuasion.

CHAPTER 3

AN EVALUATION OF SOME THEORIES OF PERSUASION

3.1 Introduction

The previous chapter looked at the current research literature on computer-mediated communication (CMC). However, there is another aspect to the present research, namely persuasion and attitude change, and so this chapter will evaluate some of the current theories of persuasion.

Persuasion can be thought of as a fundamental part of human communication, which can be seen in a wide variety of interactions, whether in a casual manner between individuals, or in a more directed way, as with advertising or propaganda. Within CMC, there is certainly a great potential for persuasion to occur, as people come together to discuss various topics of interest, so that there are many opportunities for attitudes to be formed and changed.

For the purposes of this discussion, the following definition of persuasion is used:

“a process of inducing a person to adopt a particular set of values, beliefs or attitudes” (Reber, 1985, p538)

A considerable amount of research has been carried out in the field of persuasion, and there are a wide variety of theoretical approaches and models that have been developed. A basic distinction, commonly used, can be drawn between single process and dual process models, and this is the way in which the theories discussed here have been organised.

3.2 Single Process Theories

A range of theories can be included within the category of single process theories. These theories basically suggest that there is a single route to persuasion, although the form this takes varies. The most significant of these theories are discussed in the following sections.

3.2.1 Message Learning Approach

The message learning approach (Hovland et al, 1953) is of considerable importance in persuasion research, as it provided the foundation for much later work, and identified several important factors in persuasion. According to Petty & Cacioppo (1996)

“The subsequent approaches evolved in most instances to explain more simply, completely and/or accurately the psychological processes underlying these effects (e.g. message repetition enhance persuasion) and to specify in greater detail the circumstances that would lead to their emergence, nonemergence, and reversal.” (p.93)

The focus of this approach was on the question ‘who says what to whom and with what effect’. In other words, the factors focused on were the source (who said it), the message (what was said), and the recipient (the audience). Also of interest were the channel (medium) and persistence (durability of effects). This provides a useful framework for the current research, as it defines variables of interest within the context of persuasion.

Based on their research, important aspects within each of these factors were defined. These are discussed briefly below.

The significant variables for the source are related to their perceived credibility, which in turn is derived from factors such as trustworthiness, expertness and personal factors such as age and likability. Early studies suggested that a high credibility source would be more persuasive, but later research showed that high credibility sources are not always more persuasive than moderate or low credibility sources. It has been found that people sometimes accept or reject a persuasive message immediately following presentation on the basis of source cues rather than on the basis of the content, particularly if the source has clearly high or low credibility, so the recipient does not need to carefully attend to the message (Husek, 1965; in Petty & Cacioppo, 1996), or where the issue is not particularly relevant to the recipient so they have little reason to devote much attention to the message (Petty & Cacioppo, 1981; Sigall & Helmreich, 1969, in Petty & Cacioppo, 1996). The message learning approach suggests that source factors influence the incentives people have for attending to, comprehending, yielding to, and retaining recommendations made in a persuasive message.

The message (content) factors refer to elements within the message itself. Effective messages should provide incentives for learning and accepting the advocated attitudinal position. The message should be comprehensible, as in order for it to be persuasive, it must first be attended to and comprehended. Factors here include the number of arguments (too many arguments and the recipient may stop attending), whether the message is one-side or two-sided, and the style of presentation (for example, a speaker who looks at the audience is judged as being more credible (Hemsley & Doob, 1978, in Petty & Cacioppo, 1996), and speakers who use a power style of speaker are more persuasive than those using a powerless style (Lind & O'Barr, 1979, in Petty & Cacioppo, 1996)).

Finally, audience factors include group conformity motives and individual personality factors. For example, it has been found that people with low self-esteem are more likely to yield to influence (McGuire, 1969, in Petty & Cacioppo, 1996). Early studies also suggested that women are more persuasible than men (Eagly, 1978, in Petty & Cacioppo, 1996), although it would appear that these sex differences may

be related to interest or knowledge in a topic, so that it is easier to persuade someone with little interest in the issue (Sistrunk & McDavid, 1971, in Petty & Cacioppo, 1996).

The basic assumption of this research is that a persuasive communication must gain a person's attention and must be comprehended. The message arguments and conclusion then need to be mentally rehearsed, so that a link is established between the issue and these implicit assumptions. In other words, a communication has to be remembered to be persuasive. However, attention, comprehension and retention are seen as necessary, but not sufficient for attitude change, as it is suggested that attitude change would only occur if the incentives for taking the new attitudinal position outweighed those associated with the initial attitude.

Later research has shown that although this approach has provided a useful foundation for further persuasion research, the studies by Hovland and colleagues did not show the whole picture. For example, Hovland et al. (1953) suggested that a high credibility source would always be more persuasive than a low credibility source, but this is not always the case. If a highly credible source inhibits thinking on a counterattitudinal message, this will lead to fewer counterarguments and more persuasion than with a low credibility source. However, the same process occurring with a proattitudinal message would lead to fewer favourable thoughts, and hence less persuasion (Petty & Cacioppo, 1996). Furthermore, if the message concerns an issue which is either highly involving, or where the recipient has a great deal of prior knowledge, the content of the message becomes more important (Petty & Cacioppo, 1996). Thus credibility may matter most at intermediate levels, and where there is little involvement in the issue.

It can be seen, therefore, that there are limitations to this approach, and that it does not provide a full explanation of the persuasion process. However, as has been previously noted, it does provide a useful framework around which research can be structured, as with the present studies.

3.2.2 *Reception Yielding Model*

The reception yielding model (McGuire, 1985) can be thought of as a development of the message learning approach. Kruglanski and Thompson (1999) referred to it as a significant milestone in the development of research away from the itemization of variables towards an exploration of the cognitive and motivational processes underlying persuasion. This model is based on an input/output analysis of persuasion, focusing on the input variables (the classic Lasswell, 1948, in Hovland et al., 1953 variables of source, message, channel, receiver and target), and the output steps, consisting of the successive response steps that the receiver must be induced to take if the communication is to have its intended persuasive impact.

This model has much in common with the work of Hovland et al. (1953), in that similar assumptions are made concerning attention and comprehension. However, this model goes further in outlining the actual successive steps a perceiver must take, from the initial exposure, through arousal of interest and engagement, to retrieving and acting on the message.

A useful aspect of this model is that it takes into account the fact that a communication variable will tend to enhance persuasion at some steps and reduce it via others, and so the net effect of any communication variable depends on situational variables that determine how much each of the steps contributes to variable in any ultimate behavioural change (McGuire, 1968, in McGuire, 1985).

This approach is particularly useful within a CMC context, as it has many similarities to the way in which computer-based communications are read and attended, and this concept will be returned to in Chapter 10.

3.2.2 *Self-Categorisation Theory*

Self-categorisation theory suggests that the mechanism that underpins all collective behaviour is a subjective shift in self-definition from self as an individual to self as a group member. This theory views persuasion as involving more than just information processing, as the way in which we process information is mediated by the way we perceive social reality. It is important to note here that the critical assumption of this theory is that the self-concept is both flexible (context dependent) and hierarchically organised. In other words, individuals perceive themselves either as unique individuals or as members of a group at different times (McGarty, Haslam, Hutchinson, & Turner, 1994).

This theory maintains that there is one process of persuasion which can have different phases whereby individual cognition and social context are interdependent, rather than two distinct processes.

The persuasiveness of a person's arguments is a function of the degree of relative consensual support for their position with respect to the currently salient frame of reference. In order for group membership to have an impact, the individual must see this social categorisation as being directly relevant to themselves in order for it to affect social persuasion.

There is some evidence to support self-categorisation theory, although it should be noted that although it is generally the case that people gravitate towards their ingroup, and away from the outgroup (Turner, 1991, in Brown, 2000), it should be noted that the persuasive superiority of ingroups is only found where the social categorisation was salient and where participants were committed to group membership (McGarty et al., 1994). There is also evidence to support the notion of conformity to the in-group norm (van Knippenberg, Lossie & Wilke, 1994). Research has also show that self-categorisation can occur in terms of gender salience and language use in online communication (Reid, Keerie & Palomares, 2003).

However, there is also some evidence to suggest that there are limitations to this theory. It has been shown that although ingroup messages have a positive effect in changing attitudes in their direction, the positive effect of the majority message tends to disappear over time, and the minority message has a greater effect (David & Turner, 1996, in Brown, 2000). The theory does not really explain why this effect should occur.

Although self-categorisation theory does show how persuasion can occur through a single process, and emphasises the different impact of individual and group messages, it does not provide an explanation of how the shift between individual and group salience occurs.

3.2.3 *Persuasive Arguments Theory*

In contrast with social comparison theory, persuasive arguments theory argues that the main function of group interaction is to allow group members to state and share previously considered arguments, and to provide a forum for increasing individual information processing about various alternatives. The main argument here is that influence accrues because of the manner in which group members process arguments and the effects of these positions on individual and group decisions. The theory assumes that a pool of arguments of varying persuasiveness is associated with the alternatives to a decision and that prior to discussion these arguments are only partially shared among the group members.

There is evidence to support the contention that being able to argue and not just compare positions is important for persuasion. Burnstein (1982, in Seibold & Sunwolf, 1996) demonstrated that shifts still occurred when it was possible to argue but not compare, but these were attenuated or disappeared altogether when it was only possible to compare but not to argue. Support also comes from McGuire, Kiesler & Siegel (1987), who found that when groups were able to exchange more arguments,

they experienced more choice shift. This is of particular interest with regard to CMC, as they found that FTF groups were able to exchange more arguments than CMC groups, and so the restrictions of CMC on users being able to exchange information and arguments had a follow-on effect regarding eventual choice shift.

Burnstein (1982, in Seibold & Sunwolf, 1996) contended that this theory better predicts, and more adequately explains group choice shifts than social comparison theory. However, it has been recently concluded that social comparison theory and persuasive arguments theory are complementary rather than competing explanations.

3.2.4 *Social Identity Theory*

Social identity theory is a theory of self-evaluation, with an emphasis on across-group comparisons (Seibold & Sunwolf, 1996). Briefly, it is suggested that social identification occurs in a 3-step process, beginning with individuals categorising themselves and others as members of distinct social groups, followed by the assignment of particular attributes, behaviours and norms for both the ingroup and outgroup. In the final step, these perceived characteristics of the ingroup are adopted by the individual (Mackie, 1986). This is labelled 'referent informational influence' by Turner (1987, 1991), which is in essence where a form of self-stereotyping occurs. This theory assumes that a participant's perception of group membership directs and controls other processes.

It is claimed that this theory can account for both social comparison theory and persuasive arguments theory within a single framework. However, from a communications standpoint, this theory, as well as the two preceding theories discussed, ignore crucial features of decision making because they minimise the facilitative and transforming character of interaction about decision choices (Seibold & Sunwolf, 1996).

This theory has been developed further by researchers looked at the SIDE model discussed in the previous chapter.

3.3 Dual Process Theories

Dual process theories share the common assumption that there are two distinct routes to persuasion, with one route seen as leading to a true, real, long term change of opinion and genuine acceptance of the new view, whereas the other is seen as leading to relatively unthinking, impressionistic and short term compliance involving attention to cues or behaviour rather than factual arguments (McGarty et al., 1994). The specific details of these routes vary depending on theory, and the key theories are discussed here.

3.3.1 Elaboration Likelihood Model

The two routes to persuasion in the Elaboration Likelihood Model (ELM) are the central and peripheral routes. The central route involves the recipient's elaboration of the communicator's arguments, in other words the extent to which issue-relevant information is thought about. High levels of cognitive processing by the recipient are involved, as well as close attention to the details of the communicator's claims. The peripheral route involves persuasion cues which are external or peripheral to the actual message arguments, and so may require only low levels of processing (Gibbons, Busch, & Bradac, 1991). This model proposes a continuum of elaboration likelihood bounded at one end by the total absence of thought about the issue relevant information available and at the other end by complete elaboration of all relevant information (Petty, 1994)

The ELM suggests that recipients must decide which set of cues to focus on when processing a message, as there are often too many cues available. As a coping

mechanism, the choice can therefore be made to process systematically only those messages which are of greater importance, so that messages high in personal relevance receive more attention than those low in personal relevance (Petty & Cacioppo, 1981, in Stiff, 1986). The degree to which each route is used is determined by ability and by the recipient's motivation to process arguments. From this perspective, when the recipient is distracted or disrupted, or when knowledge levels are low, or where there is a low need for cognition, then peripheral cues are more likely to be the primary source of influence. However, when the motivation to process is high (for example, high personal relevance) then message arguments will receive greater attention (Gibbons et al., 1991; Pierro, Manneth, Kruglanski, & Sleeth-Keppler, 2004). It should also be noted that as peripheral cues demand less cognitive effort, they may be more accessible than the arguments in the message.

It should also be noted that central and peripheral processing are assumed to be qualitatively different, and capable of operating in different circumstances, although they may occasionally co-occur. This would happen when a peripheral cue (such as source expertise) may help in deciding what the extent of processing issue-relevant information should be.

Research looking at the effects of power-of-speech style has found support for the ELM, with evidence that speech style can act as a peripheral cue in persuasion (Hosman, Huebner & Siltanen, 2002). This is a concept that will be returned to in a later chapter.

3.3.2 Heuristic Model

The Heuristic Model distinguishes between systematic and heuristic processing, with systematic processing involving cognitive evaluation of message content, whereas heuristic processing uses extrinsic persuasion cues such as surface or

structural characteristics of the message itself (e.g. length or number of arguments), communicator characteristics, or audience characteristics (Chaiken, 1984).

A key part of this model is that it suggests that many distal cues are processed by means of simple schemas or decision rules presumably learned on the basis of past experiences and observations. Such processing may occur without fully absorbing the semantic content of the message, and may be relatively unthinking and effortless.

There is evidence to support this model, with research suggesting that communicator attributes may exert a relatively direct impact on persuasion (Norman, 1976; Mills & Harvey, 1972; Miller, Maruyama, Barber & Valone, 1976; in Chaiken, 1984).

It should be noted, however, that although this model explains much of persuasion, it does not constitute a general theory of persuasion. Although a great number of variables have been identified that have an impact on whether heuristic or systematic processing takes place, there are no inherent assumptions within the model about why such variables have an influence on the processing mode (Chaiken, 1984).

There are similarities between this model and the Elaboration Likelihood Model discussed previously. The main difference here is in the second route to persuasion, which here is seen as consisting of sets of heuristics, rather than the peripheral cues of the HSM. It provides a useful framework for considering the types of information that may be processed in a persuasion situation, and the types of processing that may occur.

3.4 Conclusions

In conclusion, it can be seen from this that there are a wide variety of theoretical approaches to persuasion, and it would appear that the ELM provides a particular use explanation of what occurs in a persuasive situation. In order to provide a full explanation of persuasion, any theory needs to take into consideration the different types of information involved, and the differing impacts these can have on subsequent attitude change.

Within this research, attention will be focused on the message learning approach, as a means of framing the research and indicating relevant aspects to consider within a CMC context. However, reference will also be made to aspects of the ELM, as this provides further explanation of some of the effects found.

3.5 Summary of Key Points

- This chapter evaluated some current theories of persuasion.
- A distinction is drawn here between single process and dual process models of persuasion.
- Single process theories discussed here were the Message Learning Approach, Self-Categorisation Theory, Persuasive Arguments Theory, Social Identity Theory, and the Reception Yielding Model.
- Dual process theories discussed were the Elaboration Likelihood Model and the Heuristic Model.
- Overall, it would appear that the most useful model of persuasion here is the ELM, as it takes into account differing types of information, and the different subsequent effects on attitude change.

- Within this research, the focus is on the message learning approach, as a structure for the studies, and on the Reception Yielding Model, which provides a theoretical framework for considering persuasion in a computer-mediated context.
- The following chapter discusses a study comparing three forms of communication, and considers their potential impact on attitude change following discussion.

CHAPTER 4

STUDY 1 – A COMPARISON OF FACE-TO-FACE AND COMPUTER-MEDIATED COMMUNICATION

4.1 Background

This study was a comparison of 3 types of communication - face-to-face (FTF), computer conferencing (CMC), and computer-based “chat room” (IRC) -, with attitude change post discussion as a dependent variable. The IRC condition was included as it has features of both the FTF and CMC conditions, that is, it has the anonymity of the CMC condition but it has the immediate feedback of the FTF condition. It is therefore possible to look more closely at what aspects of CMC have the greatest impact, if any, on social influence processes.

Previous research has shown that attitude change often follows discussions in small groups, either through converging on a narrower range of opinions, or through polarisation towards more extreme views (Blumberg, 1994; Shaw, 1981; Spears, Lea & Lee, 1990).

This study takes an overall view of Hovland et al.’s (1953) criteria, ‘who says what to whom, and with what effect’ (discussed in Chapter 3). The first part of this, ‘who’, is considered in relation to the available social context cues within each medium (although Hovland et al., 1953 do discuss additional criteria relating to the source; discussed further in Chapter 7). It has been shown that greater attitude change and conformity has been found within face-to-face groups, compared to computer-based groups (Adrianson & Hjelmquist, 1985, in Adrianson, 2001; Adrianson & Hjelmquist, 1991, 1999), although other studies have found that there is greater attitude change in CMC (Adrianson, 2001; Hiltz et al, 1985; Siegel et al, 1986). Adrianson (2001) suggest that the reduced opinion change sometimes found in CMC

could be due to the lack of feedback and loss of nonverbal cues, and support for this has been found in a study showing that CMC seemed to induce a communicative pattern characterised by the generation of a relatively large number of ideas and suggestions that are not responded to with other questions or other remarks (Adrianson & Hjelmquist, 1999). If this reduction of feedback does cause reduced conformity, it would be anticipated that greater attitude change might result FTF where more feedback is available. It may also be the case that a sense of immediacy, and presence of the others in the group, lead to greater attention being paid to the discussion, and hence greater attitude change taking place. If this is so, then a difference would also be anticipated between the CMC and IRC conditions.

- H1 There will be significantly greater attitude change in the FTF condition than in CMC or IRC
- H2 There will be significantly greater attitude change in the IRC condition than in CMC

It should be noted also that personality variables of the respondents may play a part here, specifically Extraversion, as it has been found that this is strongly associated with assertiveness and speaking more than introverts (Vestewig & Moss, 1976; Campbell & Rushton, 1978; in Davies, 1994). This variable could therefore lead to greater participation overall, and could therefore lead to a greater number of arguments being presented. This, in turn, could lead to greater attitude change in the direction indicated by these participants.

- H3 There will be a significant positive correlation between Extraversion scores and amount of participation
- H4 There will be a significant positive correlation between Extraversion and attitude change

4.2 Method

4.2.1 Design

This study used a partial repeated measures design, with participants taking part in group discussion in 2 of the 3 mediums considered.

4.2.2 Participants

Participants were 50 (40 female, 10 male) 1st year psychology undergraduates, with an age range of 18 – 42 years. Participation formed part of their course requirements, and they received course credits at the end of the study.

Participants were placed in groups of between 3-5 people (11 3-person groups, 3 4-person groups, and 1 5-person group), making a total of 15 groups in all. Of these, 8 were all female groups, 1 was all male, and the remaining 6 were mixed male and female.

4.2.3 Materials

4.2.3.1 Software

A wide variety of software is available for both accessing online conferences such as Usenet, and for joining in real-time ‘chatrooms’. However, these are generally commercial products, and hence there are licensing issues to be considered when using these for research purposes. Furthermore, issues of familiarity with particular software packages could become a potential confounding variable, particularly if some participants were familiar with the selected software whereas others were not.

To overcome these difficulties, two software programs were specifically designed and written for this research, one designed to act as a conferencing system (PsiMail) and one as a chatroom (PsiChat). The use of this software meant that it was possible to gain full access to all the text produced by participants, thereby simplifying availability of text for content analysis.

PsiMail

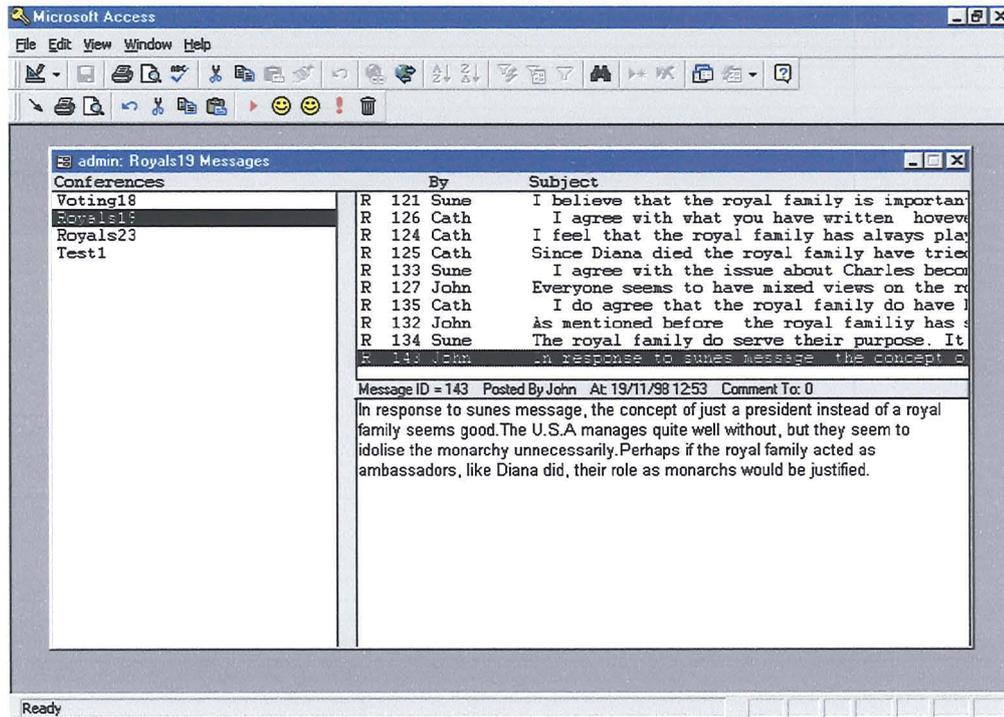


Figure 4.1 Screenshot of PsiMail program

This software included a password system to ensure that participants only had access to the conferences in which they were participating.

As with most conferencing software, a 'branching system' was incorporated, so that it was possible for participants to either add a new message or to attach comments to an existing message. This is a common feature in most CMC software packages, as it makes the 'flow of conversation' clearer and more easily determined. Figure 4.1 provides a 'screenshot' of the PsiMail program.

PsiChat

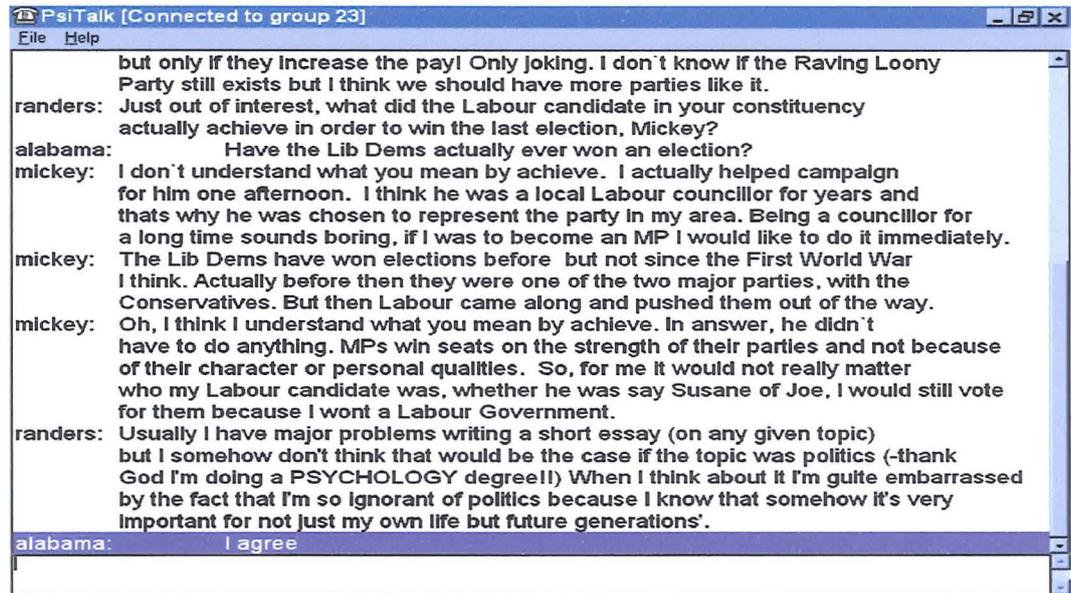


Figure 4.2 Screenshot of PsiChat program

This software allowed all members of a group to read messages entered by each, which appeared on every screen attached to the relevant username (PsiChat is illustrated in Figure 4.2). Messages were typed in the small box which can be seen at the bottom of the screenshot, and only appeared on all other screens once the Return key was pressed.

In order to emulate an online 'chatroom', a short delay was built into the program between messages being entered and subsequently appearing on other screens.

4.2.3.2 *Questionnaires*

Three questionnaires were used in this study, an attitude survey, the General Survey, and a brief questionnaire on the extent of participants' interest in the discussions. These are shown in Appendix A.

The attitude questionnaire was designed for use in this study, and covered a range of general issues. A preliminary sample of 50 participants (32 female, 18 male; age range 18-37) completed the questionnaire, and reliability was checked using Cronbach's alpha on the two sub-scales used in this study. This gave a score of 0.6531 for the Royals sub-scale, and 0.7140 for the Voting sub-scale.

The General Survey was developed by Kritzer, Hare, & Blumberg (1974), as a measure of personality for use in situations where it is not practical to use longer instruments. As participants were required to commit a relatively large amount of time to this study for the discussions, it was necessary to keep to a minimum the additional effort required in order to encourage participants to volunteer.

The questionnaire on participants interest was designed to give a general indication of how interesting the participants found the discussions, and also to give them an opportunity to make comments about the study.

4.2.4 *Procedure*

All 1st year psychology undergraduates (n=120) completed a series of questionnaires at the start of their course. As part of this, an attitude questionnaire was administered (shown in Appendix A). This formed the baseline for experimental groups, and the data were also used to select appropriate topics for the discussion groups (the topics selected were the two with the widest range of opinions elicited by the questionnaire, so that discussion could be promoted). It should be noted that the

experimental participants (n=50) were drawn from the pool of students that completed the questionnaire noted above. In this way, the first questionnaire provided their baseline attitude scores, without the participants becoming aware at the start of the study that attitude change would be tested.

Participants were allocated to groups of between 3-5 people, and randomly assigned to conditions. As each group took part in two discussions, the aim was to counterbalance both the order of discussion topic, and the discussion media used, and was further constrained by the need to ensure that all conditions were represented as nearly as possible by an equal number of groups. Table 4.1 below shows the complete list of conditions arrived at in this way.

1 st Discussion		2 nd Discussion	
Discussion format	Topic	Discussion Format	Topic
FTF	Royals	CMC	Voting
FTF	Voting	CMC	Royals
CMC	Royals	FTF	Voting
CMC	Voting	FTF	Royals
FTF	Royals	IRC	Voting
FTF	Voting	IRC	Royals
IRC	Royals	FTF	Voting
IRC	Voting	FTF	Royals
CMC	Royals	IRC	Voting
CMC	Voting	IRC	Royals
IRC	Royals	CMC	Voting
IRC	Voting	CMC	Royals

Table 4.1 Conditions, counterbalanced for format and topic

Discussions took place in two separate sessions, approximately a week apart. At the start of each session participants were told “I would like you to discuss your views on the royal family/voting and elections [as appropriate]. I am interested in your views, there is no need to argue one way or the other.” Participants were informed of the medium for discussion at the start of each session.

The FTF groups were left alone in a room for the period of the discussion, which was 30 minutes.

The CMC groups were trained individually, and given an instruction sheet showing how to operate the conferencing program, which was installed on a computer in the Undergraduate Laboratory (this instruction sheet is given in Appendix A). Each participant was asked to contribute at least 4 messages over the course of a week.

Participants in the IRC groups also participated in the Undergraduate Laboratory, and were trained on the software as they arrived for the discussion session. Arrivals were staggered with a 5 minute gap, to minimise initial contact between participants. Figure 4.3 shows the basic set-up of the room, with the computers shown in grey, and those typically used for a 3-person group highlighted in red. The IRC discussions also lasted for 30 minutes.

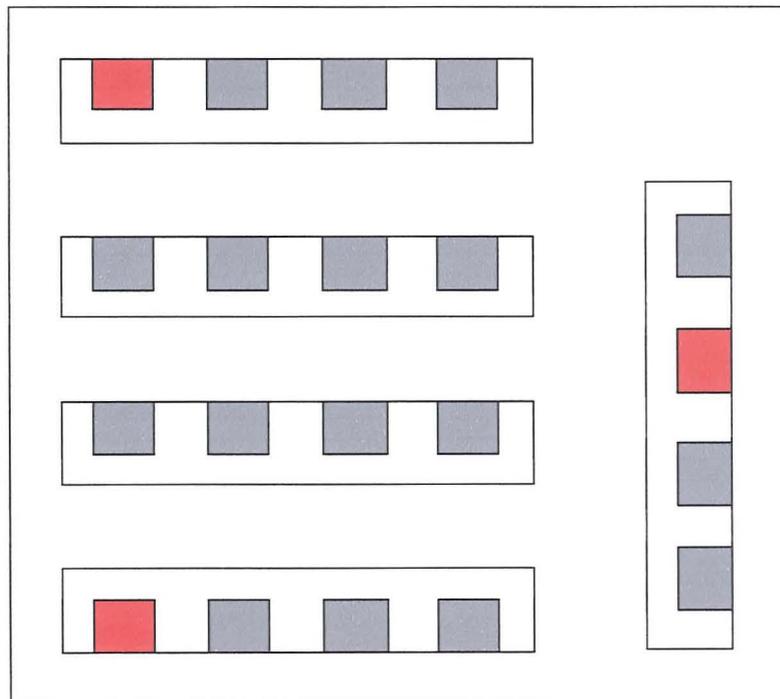


Figure 4.3 Plan of Undergraduate Lab

If the 1st discussion took place via CMC, the date of the 2nd discussion was agreed at the same time as the training took place. Otherwise, this 2nd date was arranged after the conclusion of the 1st session. If participants were to use CMC for the 2nd part, they were given appropriate instructions and training at the end of the 1st session. If the 2nd session was to be IRC or FTF, participants were not informed of this until the start of this 2nd session.

Immediately following the conclusion of the 2nd discussion, all participants completed a second attitude questionnaire, the General Survey, and a brief questionnaire on the extent of participants' interest in the discussions (questionnaires used are given in Appendix A).

4.3 Results

The results found suggest that some attitude change (measured globally, across conditions) has taken place following the discussions. This can be seen by looking at the mean scores for each subscale, pre- and post-discussion, given in Table 4.2.

Topic	Pre-discussion Mean Score	SD	Post-discussion Mean Score	SD
Marriage	26.30	4.61	20.10	5.02
Defence	13.04	5.44	13.70	6.58
Royal family	16.56	4.85	16.96	5.11
Voting/elections	20.14	4.58	19.24	4.43
Tuition fees	22.08	3.83	21.94	3.85
Internet	17.26	3.75	15.42	5.35

Table 4.2: Mean scores (N=50)

It is interesting to note that some attitude change appears to have taken place on the subscales *not* under discussion here, most notably on the marriage subscale.

The mean number of words and messages exchanged in the discussions were calculated, and are shown in Table 4.3. It can be seen from this that the mean word count appears similar for both topics in the FTF and CMC groups, but that the IRC groups spoke more in discussions with the Voting topic than with those on the Royals topic.

Royals								
	Word Count				Messages			
	Mean	N	SD	Range	Mean	N	SD	Range
FTF	324.65	20	80.904	300	26.35	20	4.392	16
IRC	307.76	17	113.785	462	27.12	17	9.027	28
CMC	146.77	13	124.012	487	3.31	13	1.182	5
Voting								
	Word Count				Messages			
	Mean	N	SD	Range	Mean	N	SD	Range
FTF	325.33	18	82.659	326	26.44	18	6.022	27
IRC	333.94	17	147.687	590	18.82	17	8.263	31
CMC	146.40	15	95.993	336	3.47	15	1.246	5

Table 4.3 Mean word count and messages for each topic/format

A preliminary examination of the discussion transcripts shows that the majority of groups did not restrict discussion to the named topic, but instead expanded to a number of other issues. In particular, many of the groups discussing voting/elections also talked about tuition fees and other such issues directly affecting students. This may go some way to explaining the attitude change on topics nominally not under discussion. Also, given that participants were not isolated from all other sources of information during the course of participation, these potential sources (i.e. historical coincidence) could also have an impact.

Attitude change on the topics discussed is shown graphically in Figures 4.4 and 4.5.

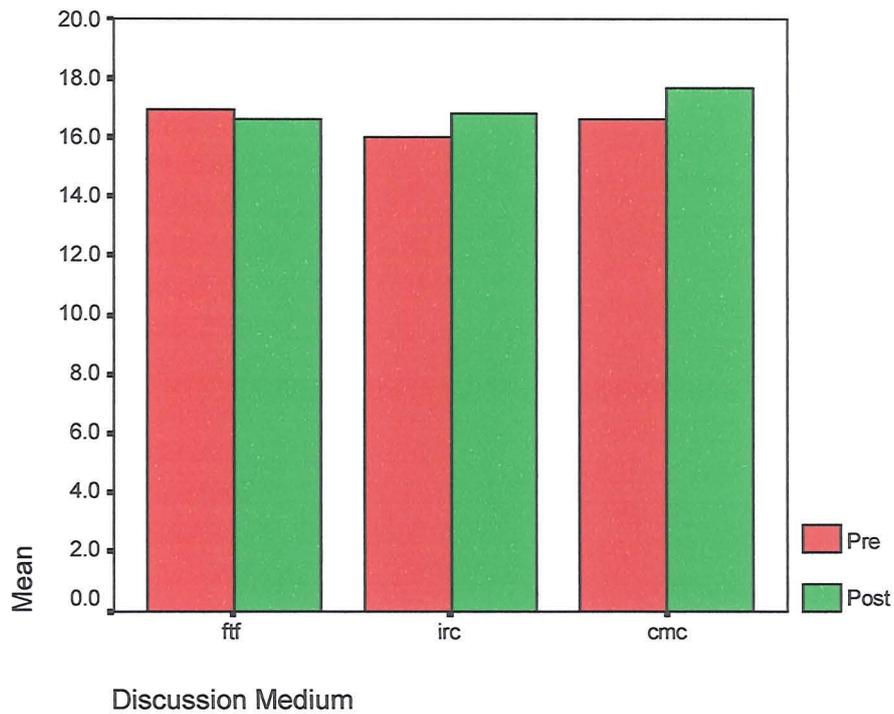


Figure 4.4: Pre- and post-discussion scores for Royal family subscale

Figure 4.4 would suggest a generally favourable attitude change towards the Royal family when discussion takes place on a computer, but a less favourable attitude results when discussions take place face-to-face (but see comments on significance tests, following).

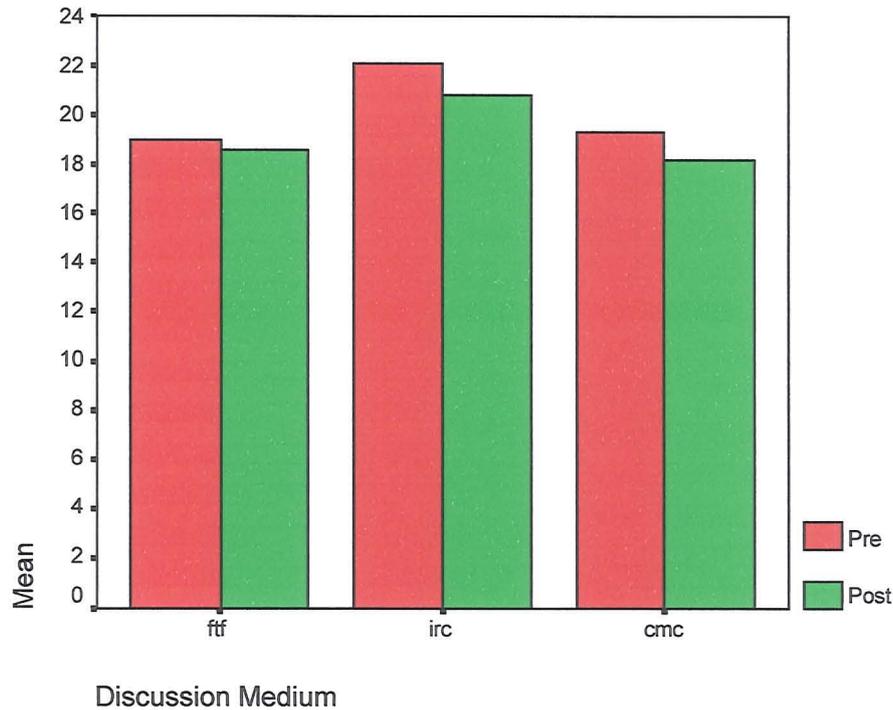


Figure 4.5 Pre and post discussion scores for voting subscale

Figure 4.5 suggests that attitudes towards voting become less favourable following discussion, irrespective of the medium in which discussion takes place.

A 2x3 mixed ANOVA was carried out, with time (pre vs post) as within-subjects factor and media (FTF x CMC x IRC) as between-subjects factor. This showed there was significant attitude change on the Royals subscale ($F=7.987 (1,44)$, $p=0.007$), but not on the Voting subscale ($F=0.693 (1,44)$, $p=0.410$).

There was no significant interaction with type of discussion on either subscale (Royals, $F = 0.722$, $p= 0.491$; Voting, $F = 0.090$, $p = 0.915$), suggesting that the format of the discussion did not have an impact on potential attitude change. It is possible that any interaction effect is very small, hence a larger sample would be required to show a small effect.

An analysis of the correlations between the personality scales taken and attitude change post-discussion was carried out, but no significant correlation was found. Although it was hypothesised that there would be a positive correlation between Extraversion and amount of participation (measured by number of words of each participant), this was not found.

There was also no significant correlation between the amount of participation in the 2 discussions, which might suggest that level of interest in the discussion is more important than the format or the personality variable, but this needs to be considered further.

A possible problem here is that of demand characteristics. Participants were aware from the beginning that they would be required to take part in discussions, one of which could be face-to-face. It seems probable that demand characteristics played a role here, in that participants may have felt obliged to talk, even if they would not have done in a non-experimental situation.

A further analysis was carried out, looking at the correlation between level of interest in the discussion, discussion format, and topic. No correlation was found between interest ratings and discussion format, which suggests that the medium was not as important as the actual topic discussed.

There was no significant correlation between interest in the Royals discussion and either word count (amount of participation) or post-discussion attitude score.

However, a significant correlation was found between the interest score on the Voting subscale and amount of participation (word count) in both the Royals ($r = 0.458, p = 0.012$) and Voting ($r = -0.437, p = 0.016$) discussions, although there is no correlation with the interest score on the Royals subscale with the amount of participation on either discussion. It is not immediately apparent why this might be the case.

4.4 Discussion

The results found show that there was significant attitude change on the Royals subscale but not on the Voting/Elections subscale. There was also no significant interaction between attitude change and discussion format. H1 and H2 cannot therefore be supported at this time.

The lack of a significant interaction might suggest that the format a discussion takes place in does not have any real impact on social influence processes, that is, not in this present context (see Study 2, Chapter 5). However, there are some limitations within this study which mean that these results should be viewed with caution. Previous research (e.g. Walther, 1994, 1996) has found that anticipated future interaction can have an effect on CMC, as such anticipation prompts communicators to seek more information about one another, and to act in a friendlier manner. This type of anticipation is also present in face-to-face encounters, and so groups that initially met face-to-face may well respond differently in a CMC context compared to those who have not done so. This is a potential confound here, as the procedure and counterbalancing used meant that some groups met initially face-to-face, and all groups were aware that a second discussion would take place (hence they had an expectation of future interaction during the first discussion).

A further point to consider here is that due to resource limitations, the IRC groups were in the same room while chatting, which can also have an effect on this type of discussion. This is somewhat similar to the individuating conditions in Spears, Lea & Lee's (1990) study, where participants were located in the same room, at separate desks facing each other. However, attempts were made to minimise this problem by separating arrivals and placing them as far apart as possible within the room, so that it was not possible for participants to see or directly speak to each other.

An interesting point to note is that participants viewed the discussion formats as being very different. The computer-based discussions were viewed as being more honest, and more open, which is consistent with the effect of equalisation found in previous studies. They were also considered to be less prone to distraction than discussions face-to-face, which would be consistent with the suggestion that CMC is more task-oriented. It should be noted, however, that it has been found that FTF discussions which are preceded by a CMC discussion are seen as being more enjoyable than when they are not preceded by CMC (Dietz-Uhler & Bishop-Clark, 2001).

Furthermore, participants actually felt the two computer-based discussions to be different, in that the CMC condition was found very restrictive, whereas the IRC condition was perceived as a very open, free format.

Given more time, it is possible that differences in attitude change might be evident within the different formats, reflecting the differing perceptions of the various discussion formats. As Walther (1992) points out, CMC groups develop in the same way as FTF groups, but over a longer period. It may well be that differences between CMC and FTF groups would only be evident after a long period, rather than the half-hour discussions which took place here. This issue is further discussed in connection with a qualitative perspective.

A personality variable was also considered, in order to look at the extent to which personality, and potential interactions with the medium are important, rather than simply the medium itself. Previous research suggested that Extraversion might moderate the amount of participation, and hence could give rise to a greater number of arguments being presented, which could then lead to greater attitude change. However, no significant correlation was found between Extraversion and the amount of participation, and hence H3 must be rejected. It would appear that Extraversion (as measured here) does not influence the amount people participated, regardless of the medium used. Further, no significant correlation was found between Extraversion and attitude change, and hence H4 must be rejected. It would appear that level of

extraversion has no impact on attitude change. These nonsignificant findings are consistent with each other, in that if extraverts participated more, and presented more arguments for their own view, it might be expected that more introverted participants would be likely to be influenced by them.

It is useful to take a qualitative approach also, and consider directly the discussions that took place, to consider whether there is a difference in the formats which is not identified purely through a quantitative approach.

The comments made by participants suggested that the CMC condition was found to be restrictive, and rather more impersonal. This view is supported by consideration of the discussions here. The messages posted to the computer system were all focused very closely on the discussion topic, with no real attempts at more personal or social communication.

However, these points do not apply to the IRC condition, even though this was also computer-based. Participants comments showed that they were very comfortable with this format, and this is borne out by the discussions that took place. There is a very playful element to many of these discussions, and a tendency to verge from the topic set to other, often very social, topics. Joking was also a common element here, in many cases more so than in the FTF discussions, suggesting that the anonymity available via computer was found to be a very positive aspect.

It is also interesting to note that some of the IRC groups were starting to develop their own norms of behaviour, and ways of dealing with the potential difficulties of an anonymous system. A recurrent behaviour was the use of directional comments, that is to say, starting a comment with a note of to whom the response was directed. Once initiated by one member of the group, this was generally quickly adopted by the others. This is consistent with Postmes, Spears, & Lea's (1992) work on norm formation, which suggests that conventions for the use of the medium are constructed socially, such that an implicit agreement emerges at group level as to what is appropriate within the group.

The FTF discussions also tended towards the informal, and frequently diverged from the set topic. It was far less formal than the CMC discussions, although not generally as playful as the IRC discussions. Comments made by participants suggest that shyness was a potential factor here, but not within the computer-based discussions.

The discussions here suggest that delay in response is a key issue, in that the longer the delay between messages, the more formal and impersonal the discussions become. It may be that with a time delay, group development is delayed because the participants' attention is divided between the message itself, and the need to go over previous messages to confirm the current position, before being able to comment further. This in itself can be a time-consuming process, and hence could leave little capacity for developing a more personal relationship with the group. This would then be consistent with Walther's (1992) comments on the extra time needed for CMC groups to develop. Further research needs to be done on this to see the extent to which this is the case.

Further content analysis needs to be carried out on these discussions, but this initial survey suggests that although from a quantitative viewpoint, there are no real differences between the formats, a more qualitative view suggests that each format has its own unique profile, and this should be taken into consideration in any future research. In particular, CMC should not be viewed as being unitary, but instead it should be clear whether this is synchronous (as with online chatrooms) or asynchronous (such as email or conferencing).

4.5 Summary of Key Points

- This study compared 3 forms of communication (face-to-face, computer-based conferencing (CMC) and computer-based 'chatroom' (IRC)), looking at attitude change following discussion, and considering the overall Hovland et al. (1953) formula.
- Some attitude change was found post discussion, but this only reached significance on one subscale (the Royal family).
- No significant interaction was found between attitude change and the format of discussions, suggesting the medium had no real impact.
- The formats were viewed differently by participants, with the computer based discussions seen as more honest and open.
- Differences were also found within the computer media formats – CMC was found to be restrictive, whereas IRC was viewed as more relaxed and even playful.
- From a quantitative viewpoint, there appears to be no real difference between the formats, however, from a qualitative viewpoint each format has its own unique profile.
- The following chapter discusses a partial replication of this study, and considers the potential impact of topic variables.

CHAPTER 5

STUDY 2 – COMPARISON OF 3 FORMS OF COMMUNICATION (PARTIAL REPLICATION OF STUDY 1)

5.1 Background

This study was a partial replication of study 1. As in the previous study, 3 types of communication - face-to-face (FTF), computer conferencing (CMC) and computer-based “chat room” (IRC) - were compared. In the previous study, some significant attitude change was found following the discussions, although only on one of the subscales. Although there was not a significant interaction with the discussion format, the means did appear to suggest there was some effect. Attitude change post discussion is therefore included here as a dependent variable, and the first two hypotheses are repeated here .

- H1 There will be significantly greater attitude change in the FTF condition than in CMC or IRC
- H2 There will be a significant difference in attitude change between CMC and IRC conditions

It is possible that the results of the previous study may have been due in part to the actual choice of topics for discussion, which would provide an explanation for the differing results on the two topics. If participants found the topic uninteresting, it may have meant they paid little attention to what was actually said, and hence did not consider any possible arguments presented. Alternatively, if an individual has firm views, or considerable interest in a topic, they may hold to their beliefs irrespective on any arguments presented. This would be consistent with predictions from the Elaboration Likelihood Model (ELM), which suggest that involvement with a topic can increase the likelihood of engaging the central route, and hence the message

would be processed more deeply (Cacioppo & Petty, 1982). In this study, a further comparison was made between engaging and unengaging topics, in order to consider whether this may have a significant effect on attitude change.

H3 There will be significantly greater attitude change on the unengaging topic (Royal family) than on the engaging topic (tuition fees)

A further factor may well be the way in which other group members are perceived. It has been demonstrated (Petty & Cacioppo, 1981) that communication with others who are liked is more persuasive than if the same message is received from a disliked source. Roskos-Ewoldsen, Bichsel & Hoffman (2002) argue that when an individual processes a message, they evaluate the source's likability, and this can have an impact on the processing of the message. In terms of the ELM, if the message is processed centrally, a likable source may result in biased processing of the message, with arguments perceived as being stronger, and hence more persuasive. Alternatively, if the message is processed peripherally, the likability of the source would act as a positive cue, again biasing the processing in favour of the source. Therefore, participants views of the others within their experimental group will be considered.

H4 There will be a significant correlation between attitude change and liking for other group members

5.2 Preliminary Survey

A preliminary survey was carried out, to select discussion topics. An opportunity sample of 90 (25m, 65f) completed a questionnaire (given in Appendix B) rating 14 general discussion topics on both level of interest (on a scale of 1-7, with 1 = no interest at all, and 7 = extremely interesting), and on whether they held strong views on each (on a scale of 1-7, with 1 = no views at all, and 7 = extremely strong views).

Two topics were selected based on mean scores (highest and lowest) on both interest and strength of views. The two topics were Tuition Fees (interest: mean 5.5667, SD 1.55823; views mean 5.4333, SD 1.62874) and Royal Family (interest: mean 2.4111, SD 1.69350; views: mean 3.5333, SD 2.24459).

5.3 Method (Main Study)

5.3.1 Participants

Participants were 51 first year psychology students (46 female, 7 male), aged between 18 – 65. Participation was part of the students' course requirements.

5.3.2 Materials

Three questionnaires were used, an attitude survey, a brief questionnaire rating the other participants, and a brief questionnaire on interest in the discussions.

The attitude survey was piloted to check for reliability (n=27, 20 female, 7 male; age range 24-39), and Cronbach's alpha obtained for the relevant subscales (Tuition fees 0.6058; Royals, 0.8362).

The questionnaires used are given in Appendix B.

5.3.3 Procedure

The procedure for this study was identical to that used in Study 1 (Chapter 4), but with Tuition Fees as one topic rather than Voting and elections.

All 1st year psychology undergraduates (n=120) completed a series of questionnaires at the start of their course. As part of this, an attitude questionnaire was administered (shown in Appendix B), and this formed the baseline for experimental groups. It should be noted that the experimental participants (n=51) were drawn from the pool of students that completed the questionnaire noted above.

Participants were randomly allocated to groups of between 3 and 5 for the duration of the study, and took part in 2 discussions (in 2 of the 3 formats). The discussions were introduced as general debate on the royal family (for one discussion), and tuition fees (for the other discussion). The order of discussion format and topic were counterbalanced (as in Study 1) to avoid possible order or practice effects.

The 1st and 2nd discussions took place a week apart, where possible. In the CMC condition, participants were asked to contribute a minimum of 4 messages over the course of a week. The identical procedure to that used in Study 1 was followed, to avoid adding any further possible confounding variables.

After the 2nd discussion, all participants completed a second attitude questionnaire, and 2 brief questionnaires rating the other group members, and interest in the discussions.

5.4 Results

The results suggest that some attitude change has taken place. This can be seen by looking at the mean scores pre- and post-discussion, given in table 5.1, and shown graphically in Figures 5.1 and 5.2.

Medium	Royals				Tuition Fees			
	Pre-discussion		Post-discussion		Pre-discussion		Post-discussion	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
FTF	30.24	5.99	30.52	6.14	20.17	4.67	23.00	7.07
IRC	25.92	6.29	25.75	8.66	22.70	5.15	22.67	4.33
CMC	27.39	7.01	27.44	9.11	19.83	3.76	20.92	4.36

Table 5.1 : Mean scores pre- and post-discussion

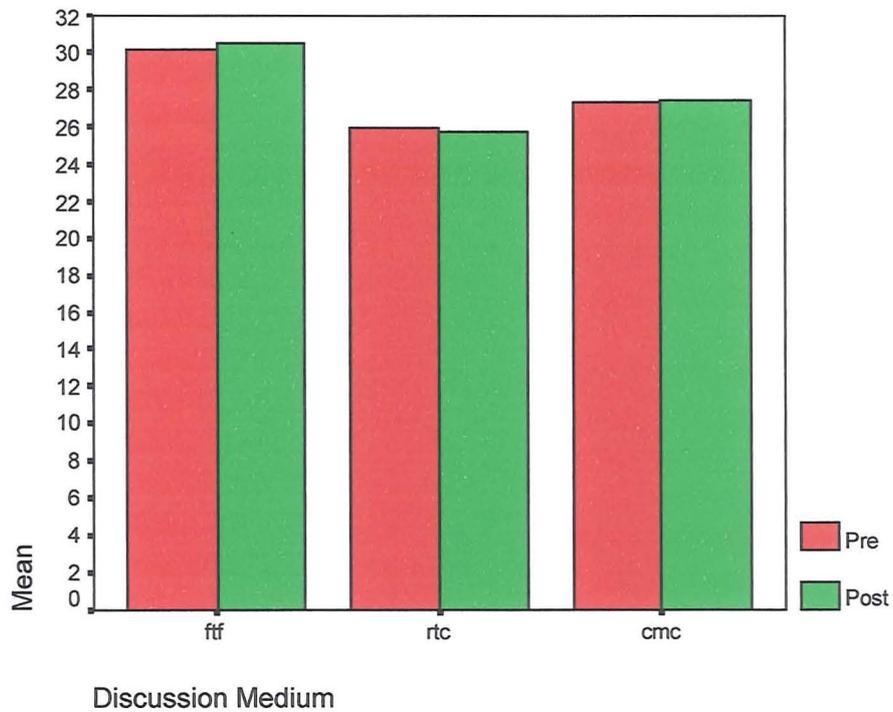


Figure 5.1: Mean scores pre- and post-discussion on Royals subscale

Note: A higher score indicates a more favourable response

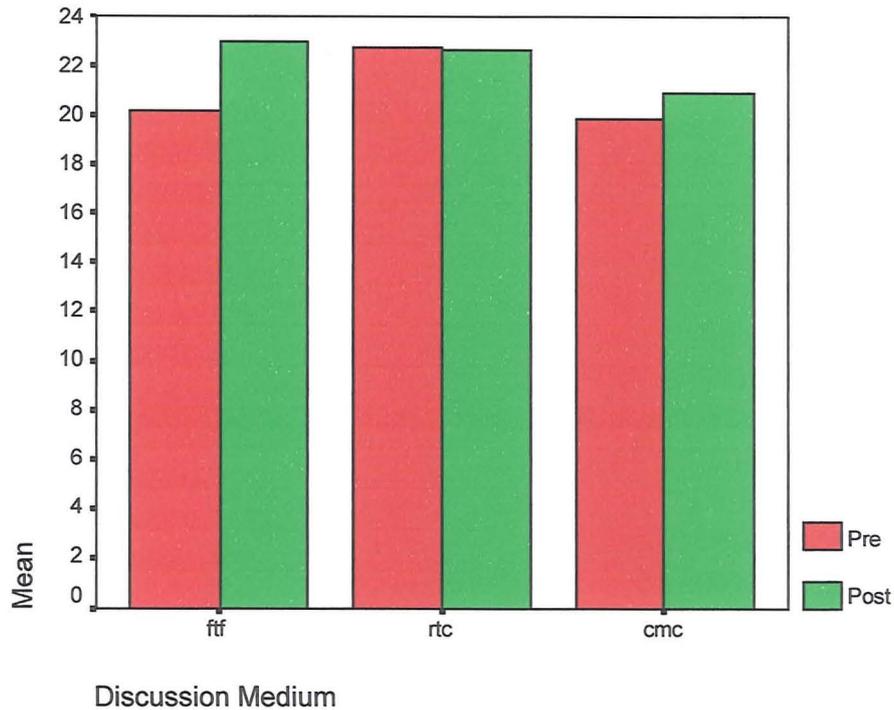


Figure 5.2: Mean scores pre-and post-discussion on Tuition Fees subscale

Note: A higher score indicates a more favourable response

It should be noted that there is no consistent baseline for pre-discussion scores, as participants were randomly allocated to groups. The results should therefore be viewed with caution, as there may be floor or ceiling effects in some conditions which could obscure potential attitude change.

Figures 5.1 and 5.2 show that there is a tendency, on both subscales, for attitudes to become more favourable in both the FTF and CMC conditions, but less favourable in the IRC condition. This would suggest that the medium does have some effect on attitude change, irrespective of discussion topic. The precise nature of this effect may become clearer from analysis of the discussion content.

A 2x3 mixed ANOVA, with time (pre vs post) as within-subjects factor and media (FTF x CMC x IRC) as between-subjects factor, was carried out. The results show significant attitude change on the Royals subscale ($F=98.767 (1,45), p=0.000$), but not on the Tuition Fees subscale ($F=1.555 (1,45), p=0.219$).

There was no significant interaction with type of discussion on either subscale (Royals, $F=0.627$ (2,45), $p=0.539$; Tuition fees, $F=0.676$ (2,45), $p=0.514$), suggesting that the format of the discussion did not have an impact on potential attitude change. It is possible that any interaction effect is very small, hence a larger sample would be required to show a small effect.

It should also be noted that these results do not appear to be consistent with the means shown earlier in Figures 5.1 and 5.2, which would suggest that greater attitude change occurred on the Tuition Fees subscale than on the Royals subscale.

Furthermore, when looking at the between-subjects effects, there is a significant main effect of type for Tuition Fees ($F=4.488$ (2,45), $p=0.017$), but not for Royals ($F=0.063$ (2,45), $p=0.939$).

It is possible that some confounding variable has obscured the results, giving rise to the somewhat conflicting outcome. As the topics were selected to differ as far as possible in terms of how engaging they would be, it is possible that the extent of interest in the topic may have obscured any effects of medium. A further ANOVA was therefore carried out, with level of interest included as a covariate.

This analysis showed no significant attitude change on Royals ($F=1.927$ (1,43), $p=0.172$), but significant attitude change on Tuition Fees ($F=9.017$ (1,43), $p=0.004$). As before, there were no interactions with the medium on either subscale.

However, the between-subjects analysis showed that there was a significant effect of interest on the Royals subscale ($F=6.219$ (1,43), $p=0.017$), although not on the Tuition Fees subscale ($F=0.646$ (1,43), $p=0.426$). This would suggest that the level of interest in the topic could have an effect on attitude change, although it is not immediately clear exactly how this effect may occur.

In order to clarify the impact of interest ratings on possible attitude change, possible correlations between attitude change scores and the various interest and personal ratings were made. A significant negative correlation on attitude change

between the two subscales was found ($r = -0.338, p = 0.015$). It is not immediately clear why this has occurred, but further investigation of this point might clarify the differing analyses previously mentioned. However, there is no correlation between the interest rating and attitude change, and so it appears from this that level of interest does not have an impact on attitude change. It could be argued that any effect of interest on attitude change is indirect rather than direct, and hence does not show itself directly in a correlation.

It should also be noted that there are no significant correlations between the group member ratings and attitude change, which would suggest that an individual's perceptions of other group members (in this case, their likability) does not have a significant role in attitude change in this study.

5.5 Discussion

The results found present a somewhat ambiguous picture. The first analysis suggested that there was significant attitude change on the Royals subscale, but not on the Tuition Fees subscale, which does not appear entirely consistent with the means found. However, when interest ratings were included as a covariate, a completely different result was obtained, with significant attitude change on the Tuition Fees subscale, but not on the Royals subscale. No significant interaction with the medium was found in either analysis, therefore H1 and H2 must be rejected.

From a purely quantitative point of view, it would appear that the medium is “transparent”, in that it does not appear to have a significant impact on social influence processes. Instead, attitude change seems to be moderated mainly by the actual topic under discussion, and so the topics themselves need to be considered in greater depth. However, this result should be viewed with caution, as the same limitations discussed in the previous chapter also apply here.

This point is illustrated by the conflicting results that are obtained when interest ratings are included in the analysis. Previous findings (Study 1) suggested that significant levels of attitude change would only occur where the topic was rating as “boring”, and hence the participants had no personal involvement with the issue (which would then increase the likelihood of central processing). If this were the case, then there should be a significant negative correlation between interest ratings and level of attitude change. However, the results found here do not show any significant correlation between these two variables, which suggests that the possible effect of interest is not straightforward. Furthermore, the inclusion of interest ratings as covariates in the analysis, so that any effects of a correlation with attitude change were removed, gave rise to conflicting results to the prior analysis. This would strongly suggest that although in this study no direct correlation was found, there may well be some indirect effect. This is an area which needs to be considered further, and may go some way to explaining the contradictory results from the ANOVAs previously discussed. It should also be noted that it is not clear at this time whether H3 has been supported.

It is also important to consider other factors which may have had an effect here, specifically the ratings of other group members. Previous research has shown that individuals are more likely to be persuaded by someone that they perceive to be likeable. The results found do not show any significant correlations with attitude change for liking for the other group members, therefore H4 must be rejected. However, it is possible that, in common with the interest ratings, this factor may have an indirect effect on attitude change, in that increased liking may correspond to an increased willingness to pay attention to arguments put forward. This issue needs to be investigated further.

Although the quantitative aspects of this study are somewhat ambiguous, the qualitative aspects may prove illuminating. Figures 5.1 and 5.2 seem to suggest that there is a general tendency to become more favourable towards the topic when discussions take place in the FTF and CMC conditions, but less favourable in the IRC condition. This difference is not statistically significant, but content analysis may

show differences in discussion content which illustrate possible subjective differences between media.

It is also possible that the effects of interest may be clarified by considering the actual discussions. For example, discussions rated as “interesting” may have more persuasive arguments, or focus more closely on the issues, while those rated as “boring” may lack focus and be somewhat stilted. It may also be the case that personal involvement with the topic, which would act as a cue for more central processing (in terms of the ELM) would give rise to greater involvement in the discussion itself, and hence a greater feeling of satisfaction overall. This distinction between “interesting” and “boring” discussions could also be related to perceptions of the other group members. It could well be the case that the interest ratings refer more to overall aspects of the discussion (such as the medium, the other group members, external factors), rather than simply to the topic under discussion.

From looking at the comments of participants, it does appear that there are subjective differences between the media, although individual perceptions of each medium vary somewhat. In general, the CMC condition was viewed least favourably, with participants finding it a somewhat awkward method of communicating, and occasionally frustrating due to delays in receiving replies to messages. This seems to be reflected in the somewhat stilted discussions that took place in this medium.

The IRC condition was viewed rather more favourably, although the tendency to “drift” off topic was recognised. Frustration was also an issue here, as some found that typing was a somewhat slow and difficult aspect, and needed a great deal of attention. To some extent, delays in waiting for responses was also perceived as a problem. When looking at the discussions, these appear disjointed at times, and it appears that group members are also experiencing some difficulty in following the conversation.

Very little comment was made concerning the FTF condition, but it should be noted that 2 people felt somewhat uncomfortable about the use of a videocamera.

Given this, the discussions here may be somewhat lacking in ecological validity, and so content analysis of these discussions should be viewed with caution.

Further content analysis, in greater depth, needs to be carried out on these discussions, but this initial survey suggests that although from a quantitative viewpoint, there are no real differences between the formats, a more qualitative view suggests that each format has its own unique profile. In general, the different media follow the same pattern found in Study 1, which suggests that the subjective differences found are aspects of the media themselves, rather than simply a reflection of differences in the subject population.

5.6 Summary of Key Points

- This study was a partial replication of Study 1 (Chapter 4), with the addition of topic variables (interest), and ratings of other group members.
- Significant attitude change was found on one subscale (topic of Tuition Fees), but no interaction was found with the medium on either subscale, or with interest ratings.
- From a quantitative perspective, the medium appears ‘transparent’, in that it does not appear to have a significant impact on social influence processes. Instead, attitude change seems to be mediated mainly by the topic under discussion.
- The different media follow the same pattern found in the previous chapter, which would suggest that the subjective differences found are aspects of the media themselves, rather than simply a reflection of differences in this particular sample.
- The following chapter looks more closely at qualitative aspects of the groups, through content analysis of discussions.

CHAPTER 6

STUDY 3 – COMPARISON OF ONLINE DISCUSSION STYLES

6.1 Background

The two studies discussed previously looked at laboratory based groups, a method that is commonly used within the literature for studying social interaction. However, there is some evidence to suggest that such groups may behave differently to those in the field (Strauss & McGrath, 1994; Walther, 1992; Walther & Burgoon, 1992). Furthermore, there are some important differences between laboratory groups and actual groups in the field. The laboratory groups tend to be zero-history groups (that is, they have no prior history of interaction), and are often of short duration, coming together only for the length of the experiment. They may also be inexperienced with the technology used. These factors mean that there is a distinct contrast with actual online groups, which may well interact for a considerable period.

It is therefore important to consider the extent to which laboratory and field groups differ, so that the level of extrapolation possible from such laboratory groups can be clarified. If both types of group can be shown to behave similarly, greater confidence can be placed in the results of laboratory based studies.

This study looks at the interaction within actual groups, by means of content analysis of the group discussions.

6.2 Method

6.2.1 Samples

Field Groups

At the time of selection, the majority of Usenet groups could be grouped under the rec. (recreation), alt. (alternative), and soc. (social) categories. One group was selected from each of these groupings, giving a total of 3 Usenet groups for analysis. An initial selection was made by looking for discussion groups covering similar areas to the topics used in Studies 1 and 2, within these categories, and as a result two groups were chosen:

alt.politics.elections – as a match for the voting and elections topic in Study 1
soc.college – as the closest match for the tuition fees topic in Study 2

It was not possible to find any similar discussion groups within the rec. category, and so a random selection was made:

rec.juggling

Messages were collected from these groups over a single 1 week period.

Laboratory Groups

The conferencing (CMC) and online chat (IRC) conditions in Studies 1 and 2 were recorded automatically on computer, and these transcripts were then analysed.

6.2.2 Content Analysis Categories

The content of each group was analysed using each full statement or message, that is the total message posted was considered, rather than breaking it down further into individual sentences. Each message was rated on 2 dimensions, one looking at the actual message content and the other looking at language style. Previous research has used a variety of content categories, and those selected here are derived from the work of Reid et al. (1996) and Rice and Love (1987), which analysed content both in terms of task behaviour and also socioemotional content. The category definitions were further clarified through the use of a second rater on a small sample, to ensure that ratings were consistent throughout. Examples taken from the experimental groups are given following each category definition below.

On the message content dimension, 3 categories were used:

- ◆ Task – content was focused on the stated topic of the group
From a discussion on the Royal family:
“Since the Royal family have no real power any more (Although the Queen’s the Head of State, she has no real authority compared to say 100 years ago) their usefulness comes into question”
- ◆ Social – off topic statements, but not including those relating to group organisation issues
From a discussion on the Royal family:
“hello everyone what do you think of goldsmiths”
- ◆ Procedural – netiquette issues (group rules on appropriate behaviour), and experimental issues (for the laboratory groups)
From a discussion on tuition fees:
“I CAN’T GET OUT OF CAPITALS!”

On the language style dimension, 2 categories were used:

- ◆ Formal – absence of informal language markers

From a discussion on voting:

“If you vote for the party that best represents your views and they are not fulfilling their promises it may be an opportunity to get involved yourself with the parties”

- ◆ Informal – incomplete sentences, slang, humour and jokes, abusive or offensive language

From a discussion on the Royal family:

“lucy u r dum dum”

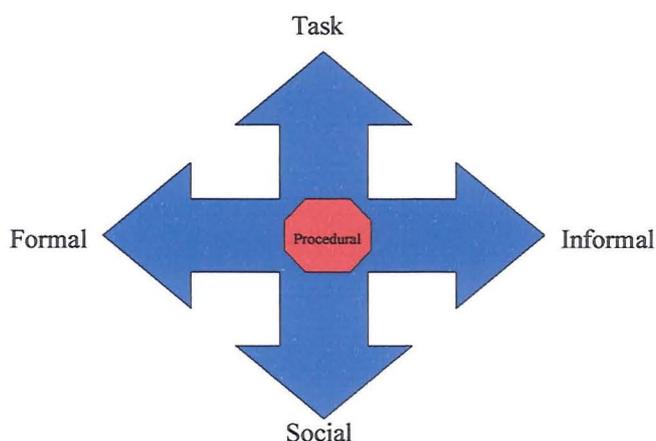


Figure 6.1 Content analysis categories

Figure 6.1 gives a visual representation of the way in which the two dimensions interact. The content of a message can be thought as being placed in one of the four quadrants. The analysis could be taken further, such that the distance along the relevant dimensions could be measured; however, this was not carried out within this study.

Each discrete message was coded on both dimensions, and given a single code for each. A small sample was coded by a second judge, to check for inter-rater

reliability, and any discrepancies between the raters were discussed to enable agreement on coding to be reached. The following are example messages (as posted in the groups), with the relevant coding.

Content Code	Language Code	Message
Task	Formal	I believe that the royal family is important in the way that it is a part of the English history. But they should maybe change to suit modern life a bit more. To keep the royal family is to remember its history and remember the past. If you forget the past you will forget the mistakes that have been made.
Task	Informal	Dear chelsea let me take this opportunity to tell you that I did not fight the most heated and contested battles of my life in order to be called a moron by the likes of you. Your political knowledge stems as far as that of a mushroom. With regards to headswims attempts at a conversation on the political agenda I doubt that you can tell the difference between the houses of parliament and your local kebab shop.
Social	Formal	Hello everyone
Social	Informal	Hey, I'm surfing the net here. I've got a porn site by accident. Eurghhhh!
Procedural	Formal	I do wonder if this might be some trick in the experiment... What do you think?
Procedural	Informal	Oops, typo that should have been 'we've'

Table 6.1 Example messages with coding

6.3 Results

As the total number of messages in each group varies considerably, the results are given as the percentage of the total number of messages within each group, in order to clarify across-group comparisons.

6.3.1 Usenet Groups

As the output for 3 groups was analysed, the results for each group are given separately. The total percentage of messages in each category is given in Table 6.1.

Group	Total N	Content Type						Language Style			
		Task		Social		Procedural		Formal		Informal	
		N	%	N	%	N	%	N	%	N	%
Alt.politics.elections	38	32	84.2	6	15.8	0	0	11	28.9	27	71.1
Rec.juggling	187	151	80.7	24	12.8	12	6.4	114	61.0	73	39.0
Soc.college	236	172	72.9	51	21.6	13	5.5	58	24.6	178	75.4

Table 6.2 Percentage of statements in each category

It can be seen from this that the majority of the content in each group was Task-related, with only a small percentage of Procedural messages in two of the groups, which would suggest that the general trend is for groups to focus discussion on the specific topic relevant to them. This is shown graphically in Figure 6.2.

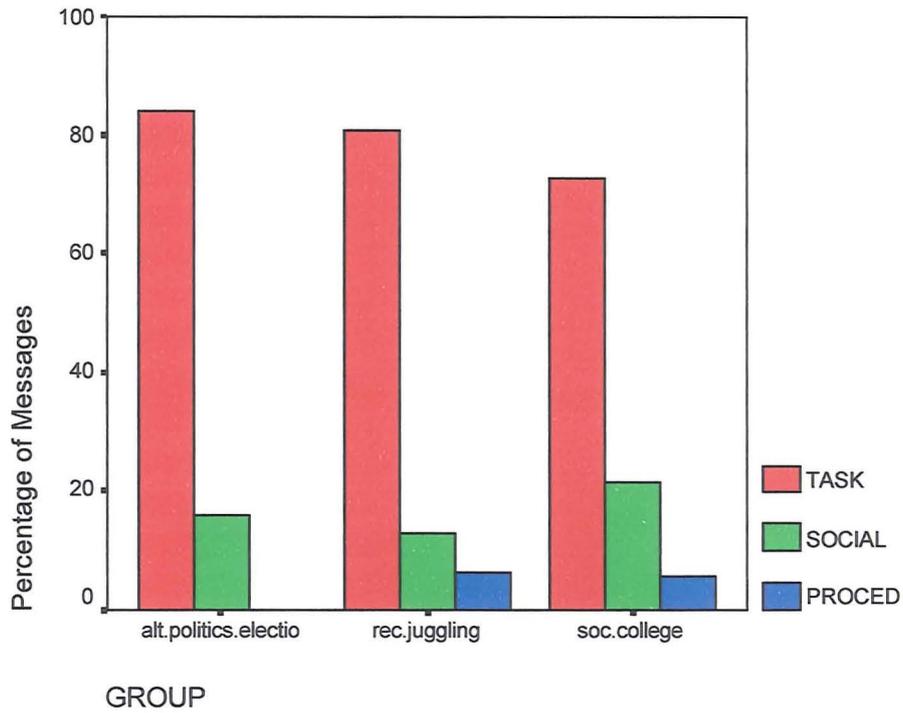


Figure 6.2 Message Content of Usenet groups

However, the results are not as consistent across the groups when language style is considered. It can be seen from Table 6.1 that for two groups the majority of messages can be classified as Informal, whereas the reverse is the case for the third group. This is shown graphically in Figure 6.3.

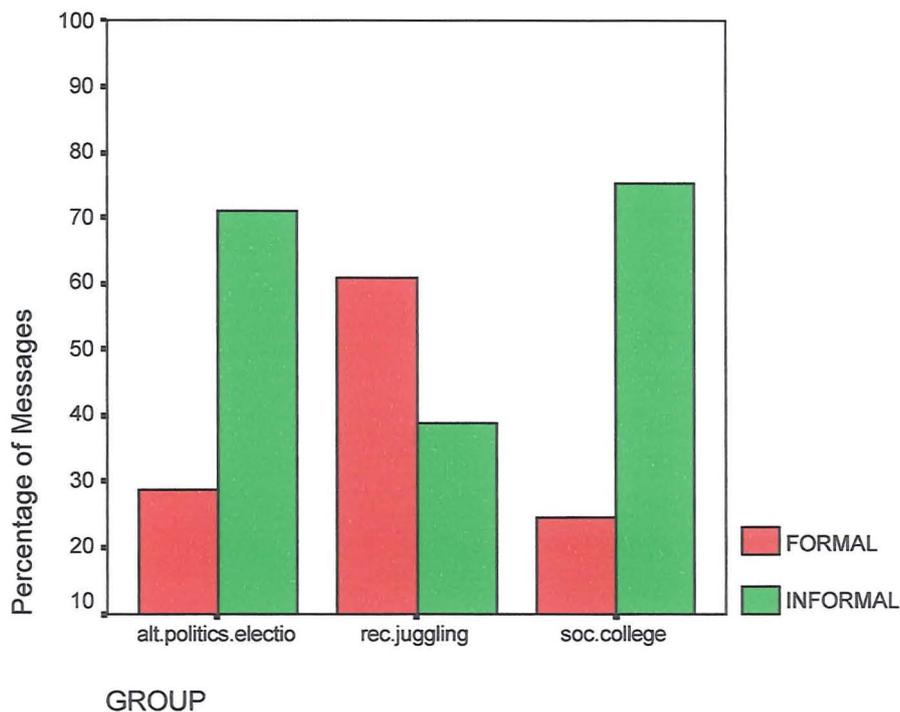


Figure 6.3 Language Style of Usenet groups

Inspection of the transcripts indicates that the high level of Formal messages within rec.juggling is due to the large number of technical messages, giving details of how to perform particular juggling tricks.

6.3.2 CMC Groups

For the laboratory studies, results for the CMC groups are presented first and then, in a subsequent section, those for the IRC groups. Results comparing the different media follow the IRC groups results.

The percentage for each category was calculated for the three discussion topics used in Studies 1 and 2, and the results are given in Table 6.2.

Group	Total N	Content Type						Language Style			
		Task		Social		Procedural		Formal		Informal	
		N	%	N	%	N	%	N	%	N	%
Royals	101	97	96.04	3	2.97	1	0.99	76	75.25	25	24.75
Voting	53	49	92.45	1	1.89	3	5.66	44	83.02	9	16.98
Tuition Fees	33	33	100	0	0	0	0	31	93.94	2	6.06

Table 6.3 Percentage in each category by topic

Note: Due to rounding errors, percentage scores do not necessarily add up to 100%

It can be seen from this that the content of the messages was predominantly Task-related, irrespective of the actual topic. This is shown graphically in Figure 6.4. It is interesting to note that this is similar to the pattern found for the Usenet groups.

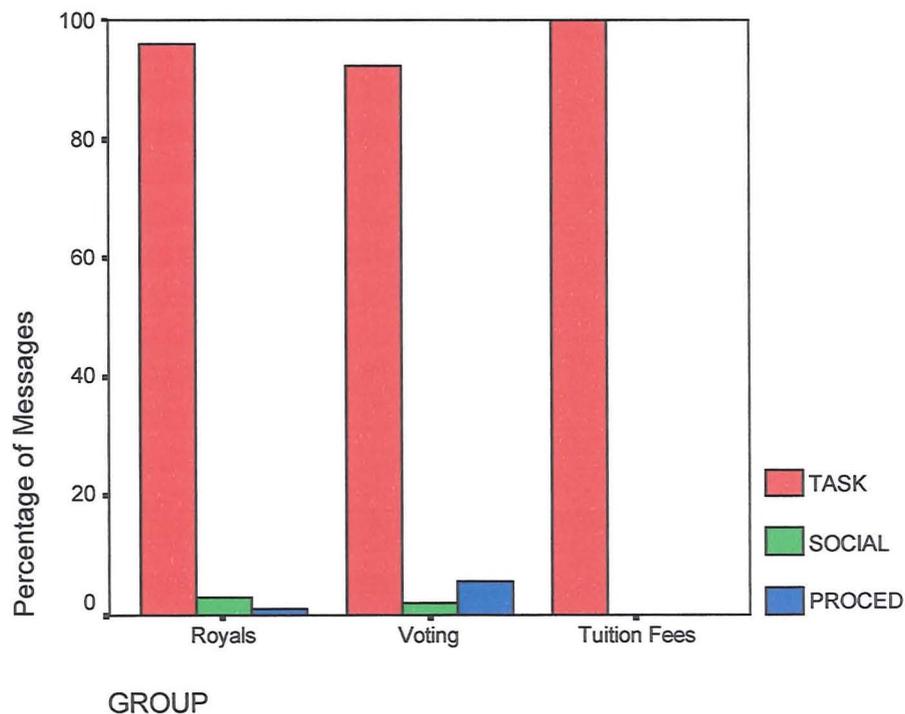


Figure 6.4 Content type in CMC groups

It can also be seen from Table 6.2 that the majority of statements were classified as Formal, again irrespective of the discussion topic. This is shown graphically in Figure 6.5. This is a very different pattern to that found for the Usenet groups, where the trend was towards Informal language.

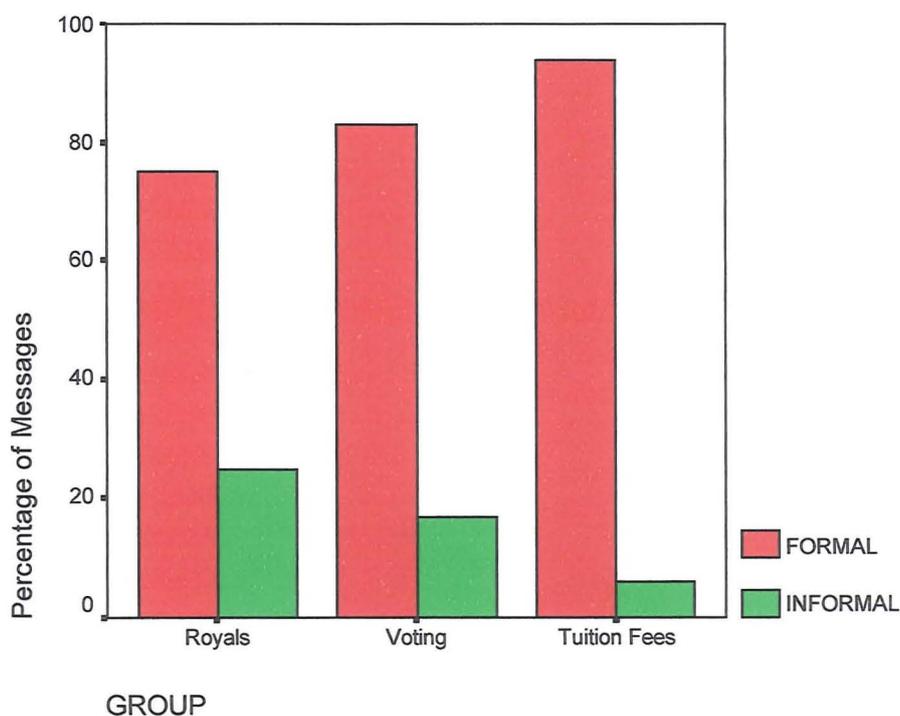


Figure 6.5 Language type for CMC Groups

6.3.3 IRC Groups

The percentages for each category, within each discussion topic, were calculated, in the same way as for the CMC groups. The results are given in Table 6.3.

Group	Total N	Content Type						Language Style			
		Task		Social		Procedural		Formal		Informal	
		N	%	N	%	N	%	N	%	N	%
Royals	793	555	69.99	215	27.11	23	2.90	259	32.66	534	67.34
Voting	274	183	66.79	84	30.66	7	2.55	146	53.28	128	46.71
Tuition fees	290	139	47.93	115	39.65	36	12.41	93	32.07	197	67.93

Table 6.4 Percentages in each category

Note: Due to rounding errors, figures do not necessarily add up to 100%

It can be seen from this that the results for Content for each discussion topic show a general trend towards Task-related messages, particularly within the Royals and Voting topics. It should be noted, however, that for the Tuition Fees topic although the majority were still Task-related (48.6%), a very high number were also within the Social category (39.8%). This is shown graphically in Figure 6.6.

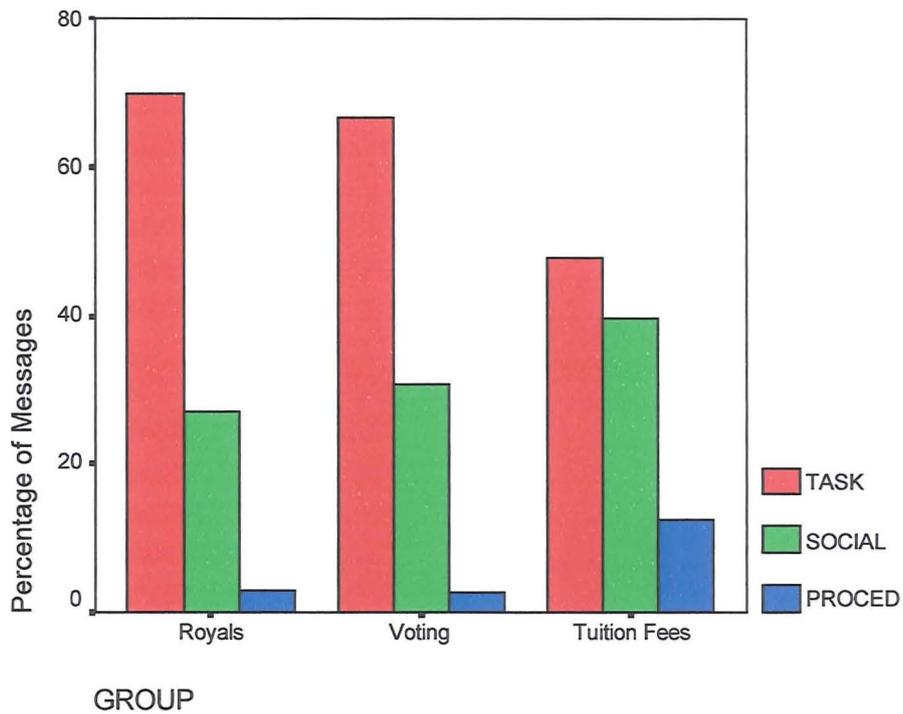


Figure 6.6 Type of content in IRC Groups

The Language Style categories also show a difference across the discussion topics, with both the Royals and Tuition Fees topics having a majority of Informal messages, and the Voting topic showing a majority of Formal messages. This is shown graphically in Figure 6.7

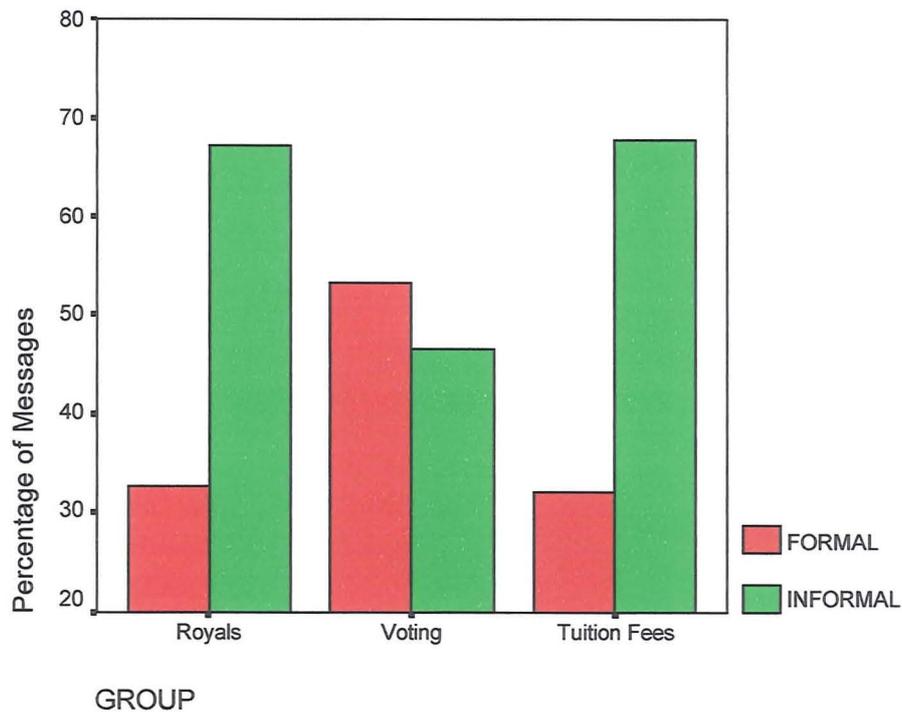


Figure 6.7 Language Type in IRC Groups

6.3.4 Across Media Comparisons

In order to clarify the results for the different groups (CMC, IRC, and Usenet), the mean percentages for each category were calculated, and these are shown in Table 6.4

Type	Total N (messages)	Content Type						Language Style			
		Task		Social		Procedural		Formal		Informal	
		N	Mean %	N	Mean %	N	Mean %	N	Mean %	N	Mean %
Usenet	461	355	79.27	81	16.73	25	3.97	183	38.17	278	61.83
CMC	187	179	96.16	4	1.62	4	2.22	151	84.07	36	15.93
IRC	1357	877	61.57	414	32.47	66	5.95	498	39.34	859	60.66

Table 6.5 Mean percentages for each medium

Note: Due to rounding errors, figures do not necessarily add up to 100%

It can be seen from this that the Content categories show a relatively similar pattern for each format, although it should be noted that the CMC groups show a much higher number of task related messages. This would suggest that the IRC groups behave in much the same way as the Usenet groups, insofar as the actual topic of discussion is concerned, but the CMC groups are much more task focused than either the Usenet or IRC groups. This is shown graphically in Figure 6.8.

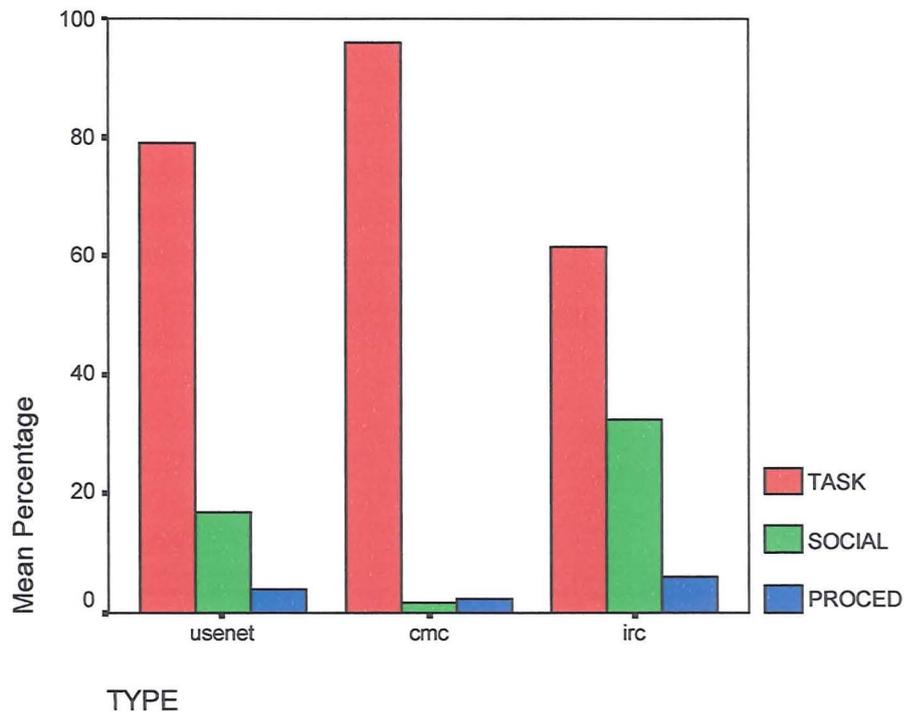


Figure 6.8 Content type across media

It would appear that overall discussion was focused on the Task, that is the specific topic appropriate to each group. However, it is interesting to note that there is a relatively high percentage of Social content within the IRC groups, although this still does not reach the same levels as Task content.

A different picture emerges when Language Style is considered, and this can be seen most clearly in Figure 6.9.

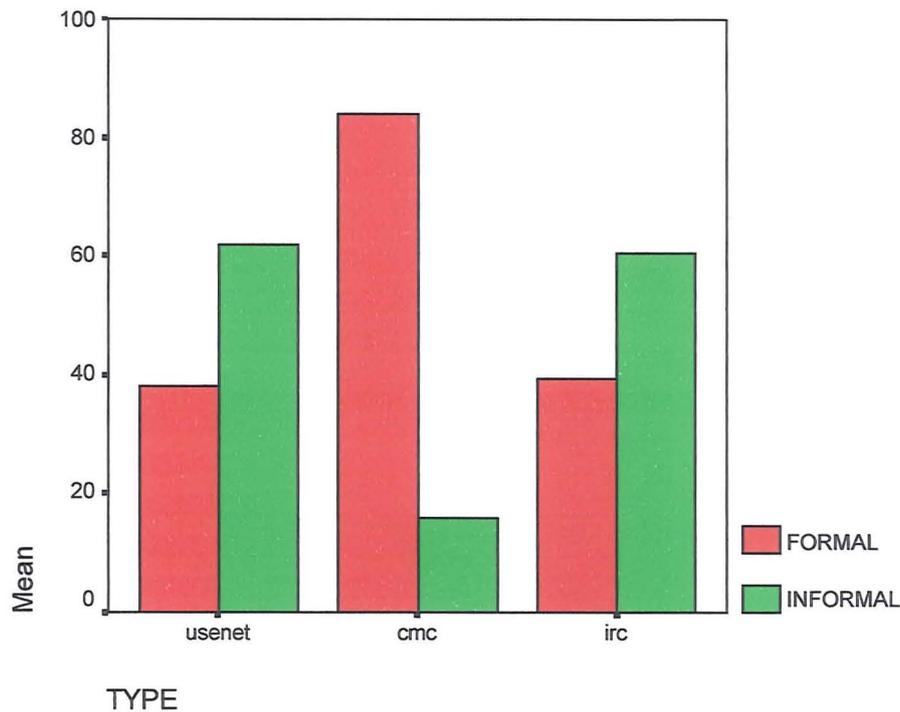


Figure 6.9 Language type across media

The IRC and Usenet groups show an extremely similar pattern, with most of the discussion being Informal in tone. However, the CMC groups show a very different pattern, with a considerable majority of messages being Formal in tone. This would suggest that although the CMC groups appear similar in format to Usenet, there is actually a considerable difference in the style of discussion which is taking place.

6.4 Discussion

The results found suggest that although there is some similarity between the laboratory-based IRC groups and the Usenet (field) groups in terms of the content of the discussions, the laboratory-based CMC groups showed extremely high levels of task focus in the content. Groups were task-oriented overall, in that discussions were

focused on the particular topic appropriate to each group. Differences between the Usenet and laboratory-based groups might be due to sampling, but the assignment of respondents between CMC and IRC was randomised. It would seem probable that the high level of task focus found in the CMC groups was due to the limited time they spent interacting. It can be seen from the number of messages exchanged that these groups had the least time in interaction, in terms of the level of participation, and so it is possible they did not have the time to develop a more social form of discussion, consistent with Walther's (1995) social information processing theory.

This would suggest that not all computer-based communication is the same in terms of possible effects on discussion. Again, this would be consistent with previous research which shows that the effects of CMC depend not only on the task, but also on the individuals or group using it (Bargh, 2002; Herring, 2002).

It should also be noted that differences between the formats emerge when Language Style is considered. CMC groups tended to be Formal in tone, whereas both the Usenet and IRC groups tended to be Informal in tone. This provides further evidence that the form of computer-based communication can have a significant effect on the discussions which take place in that medium.

Laboratory-based CMC groups are frequently used in studies to investigate issues which may arise in field groups, on the assumption that extrapolation from such results can be legitimately made. However, previous research has suggested that such groups may behave differently to those in the field (Strauss & McGrath, 1994; Walther, 1992; Walther & Burgoon, 1992), and it would appear from these results that this is certainly the case, at least for some aspects of the discussion. In terms of the actual content, and the technical aspects of the medium, CMC would appear to provide a valid basis for comparison with on-line groups. However, CMC does not seem to be as valid if aspects of discussion such as Language Style are of interest, whereas IRC does seem to be functionally equivalent, although only for language as it differs technically.

The technical differences in format may offer an explanation for the differences found between the discussions in the CMC and IRC groups. A key aspect of CMC is that it is asynchronous, which means that the group members are not present, either physically or on-line, simultaneously, and the response to a message may not appear for some considerable time, possibly hours, days, or even longer. Messages are posted and replied to at the convenience of the individual, but there is no way of knowing when, or if, the message will be read and replied to. IRC, on the other hand, happens in real-time, with all the group members present on-line simultaneously. There is therefore a minimal delay in sending and receiving of comments. This would suggest that there are different implicit requirements within each medium, in terms of length of time available to consider a response, delay before responding that is considered acceptable, and possibly even the type of reply which is acceptable. In CMC, as responses do not have to be immediate, it may be anticipated that responses will be thought out and hence well-written and direct. However, in IRC, there may well be an implicit requirement to maintain the conversational flow, as any delay in responding becomes very obvious to the other members, and hence a more casual style may result, which in turn would encourage a more Social rather than Task-oriented approach. In some ways, the other members of the group may seem more distant in conferencing than in IRC, as the immediacy of response found in IRC would contribute to a greater sense of presence and immediacy. This in turn would mean that it would take longer for conferencing groups to interact in a more social and informal way, as in a sense conferencing may at first seem more like interacting with the computer than with other people.

Technical issues surrounding computer-based communication may also have a further effect, in that there may be an impact on the amount of attention that is available to focus on the discussion itself, rather than on issues surrounding computer use. An analogy that may be useful here is that of learning to drive. Beginners learning to drive need to focus much of their attention on the technical aspects of driving, learning to use the gears, the foot pedals, the mirror, and so on, which means it is hard for them to pay as much attention to other things happening around them. However, with greater experience, they are able to focus more of their attention

outside, and less on technical points. In much the same way, in order for one to participate in a conference the appropriate program must be used, which may focus more attention on the technical aspects of sending and receiving messages correctly, and so less effort may be expended on actually following and understanding the discussion. In IRC, on the other hand, once the appropriate group has been joined, little further attention is needed for the technical aspects, as there are few options within the program to be considered, and so attention can be focused on the ongoing discussion. This may have been of importance in Studies 1 and 2 (Chapters 4 and 5), as the conferencing program (PsiMail) was written specifically for this research, and so would have been unfamiliar to all the participants. This meant that some time and effort needed to be expended in accessing and using the program correctly, and it is evident from debriefing that some participants experienced difficulty with this, which in turn may have had an impact on the discussions. This is an issue which will be discussed further in Chapter 9.

Walther (1992) has suggested that it may take longer for computer-based groups to reach decisions, and to form relationships. It is certainly interesting to note that the CMC groups here appear consistent with previous research suggesting that such groups will be more formal and task-oriented, whereas the IRC groups do not follow this same pattern, being rather more informal and somewhat more socially-oriented. It could be argued, therefore, that it is not computer-based communication per se that requires longer for interaction, rather it is the type of communication that is an issue. It may well be that it is the quality of the interaction that is important, and the length of time that is spent interacting with others, rather than with the computer prior to communicating with others. As mentioned previously, a certain amount of time is required in conferencing groups for technical aspects to be dealt with, which may then take away from the time available for the discussion itself.

In conclusion, it would appear that there are some questions concerning the ecological validity of using laboratory-based groups as a source of information regarding on-line discussions, as the appropriateness of this would appear to vary according to the specific aspects being considered. Furthermore, it would appear that

not all computer-based communication is equal, in that different formats have different effects on discussion, and so this needs to be considered carefully in any research.

6.5 Summary of Key Points

- This chapter considered the actual social interactions within groups, through content analysis of discussion transcripts.
- Some similarity was found between the laboratory-based groups (FTF, CMC and IRC groups from Studies 1 and 2) and field groups (internet-based Usenet groups) in terms of content, although more individual differences were evident within the laboratory groups.
- Differences were apparent when language style was considered, and it was found that there was a greater similarity between IRC groups and the field groups (which are somewhat dissimilar technically, IRC being a synchronous format, and the field groups being asynchronous), than between the more technically similar CMC groups and field groups (both are asynchronous).
- It would appear that not all computer-based communication is equal, as different formats have different effects on discussions.
- The type of laboratory group used in research should therefore take into consideration what aspects of communication are under consideration.
- The following chapter considers the impact of different source variables in online communication, focusing on the ‘who’ part of Hovland et al.’s (1953) formulation.

CHAPTER 7

STUDY 4 – SOURCE CHARACTERISTICS IN ONLINE PERSUASION

7.1 Background

The previous studies reported here (Chapters 4-6) took an overall view of the persuasion process, focusing mainly on the impact of the medium on the actual discussions and the end result (attitude change). In other words, in terms of Hovland et al.'s (1953) criteria of 'who says what to whom, and with what effect', the emphasis was on 'what' and 'with what effect'.

This study focuses on the first term, 'who', and considers the impact of source characteristics on persuasion, as they operate online. It is important to consider how these may operate in CMC, as there are fewer sources of information (i.e. fewer contextual cues about the source) available to recipients than those in a face-to-face communication, as previously discussed.

In face-to-face communication, there are a variety of social context cues available (discussed in Chapter 2). These include a variety of visual cues, which assist in rating the source as to their perceived level of expertise, which affects the extent to which a persuasive message is accepted.

In CMC the channels of information are restricted, and this has the effect of filtering out many cues. Spears et al (2002) argued that the cues lost are those which are more individuating, relating to personal identity, as these are complex and infinitely variable, and so require the richer channels of FTF communication to be perceived. Instead, cues relating to social identity, to group and category membership,

are more easily perceived and so become accentuated. This is because these cues to category membership may be simple (discrete) and either discreet (that is, they are subtly communicated, sometimes in language style) or easily discerned (because they reflect shared and sometimes chronically salient features).

The most obvious way in which these cues are transmitted is within the message itself. Adkins & Brashers (1995) point out that language is a focal point of CMC, and language has become the focus of considerable research. It has become clear that it is not just on what is said on-line, but perhaps more importantly, on how it is said, in other words, the style of language that is used. Previous studies have found this to be an important factor in determining credibility (Adkins & Brashers, 1995; Gibbons, Busch & Bradac, 1991; Holtgraves & Lasky, 1999). Language style can provide information about educational level and expertise (for example, the use of correct spelling and grammar, clear phrasing, and accurate terminology would all suggest an educated author with relevant expertise). However, it has also been shown that gender can be inferred from language style (Herring, 1993; Savicki, Kelley, & Oesterreich, 1999; Thomson & Murachver, 2001), and this can have significant implications. When assumptions are made about gender based on communication style, it can, as Herring (1993) points out, lead to potentially problematic group behaviour, such as mistaken behavioural intentions, false perceptions, and even discrimination based on language, such as dismissing a solution because it is offered in qualified terms.

The issue of language style covers a wide range of concepts. Some researchers, such as Herring (1993) look at the differences between male and female language styles. She describes the female style as being characterised by attenuated assertions, apologies, explicit justifications, questions, personal orientation, and support of others, whereas the male style is characterised by strong assertions, self-promotion, presuppositions, rhetorical questions, authoritative orientation, challenges to others, and humour/sarcasm. Savicki et al (1999) make a distinction between a high group development communication style (HCS), which is a pattern of more self-disclosure, statements of personal opinion, coalition language, and less argument, and tends to be found in female-only groups, whereas the opposite style, low group development

communication style (LCS) was more prevalent in male only groups. HCS does appear to be very similar to the female style of language described by Herring (1993).

A further distinction has been made between powerful and powerless language (Adkins & Brashers, 1995). Powerless language is generally defined as a cluster of linguistic features which include, but are not limited to, hesitations, hedges (such as 'maybe' or 'perhaps') and tag questions (the addition of phrases such as 'isn't it?' at the end of a statement). The absence of these features is defined as powerful language. In general terms, the use of powerful language is associated with the perception of the speaker as more credible, competent and persuasive. It would appear that powerless language use can mask ideas (and hence persuasiveness), and also alters a sender's identity (for example, their credibility and attractiveness). This powerless language style is often equated with a female style of speech (Zhou, Burgoon, Zhang, & Nunamaker (in press), and as previously noted this can have a significant impact on how a message is received.

For the purposes of this study, language style has been operationalised as high and low authority language, with low authority language characterised by hedges, tag question and uncertainty. High authority language is characterised by the absence of these markers.

H1 – There will be significantly greater attitude change in the high authority condition

H2 – Source ratings will be significantly higher in the high authority condition

H3 – There will be significantly greater recall of the message in the high authority condition

It is important to note that language style is not the only source of information within CMC. As Herring (2002) points out, the available evidence suggests that most users do not take advantage of the potential for anonymity that is possible on-line, with the result that some information about the user's identity is usually available. For

example, an email message typically has considerable information in the header (the email address, name, organisation, date and time), and it may contain a signature file with further details. Donath (1999) points out that in asynchronous discussion lists, people must sign their messages to receive recognition for their contributions, and so enhance their reputation as an expert on a topic. It is therefore important to consider what effect this additional information can have, in terms of enhancing or reducing the impact of a message.

The majority of CMC (with the exception of anonymous GSS) show the name of the sender attached to the message. As Matheson & Zanna (1990) argued that CMC might evoke stereotypical responses even when cues were as limited as a feminine or masculine first name, this can have a significant impact. If attention is paid to the name of the source, the inferences made could have an effect on perceptions of expertise, and hence on the acceptability of any message received, which in turn could affect the extent of any attitude change, and also on how positively the source is perceived. This gives rise to the following hypotheses:

H4 – The source name will have a significant effect on attitude change

H5 – The source name will have a significant effect on source ratings

7.2 Pilot Study

The topic of ‘environmental issues’ was chosen, based on a previous survey (described in Chapter 5) which showed that this area was one of interest to the student population, with many holding strong views on this. A counter-attitudinal position was selected, in line with work by Behner, Erb, Reinhard & Frank (1996). In this way, any attitude change should be more clearly attributable to the persuasive message.

Two texts were written, one as ‘high authority’ and one as ‘low authority’. The same statements were included in both, with only the language of presentation changed. The low authority message used tag questions and hedges in order to appear uncertain and hesitant over stating opinion. The high authority message used clear, direct statements, without any hedges or tag questions. In this way, any influence effects should be due to the style of presentation rather than just the information given.

The texts to be used were piloted on a small opportunity sample (n=20).

Two questions were asked concerning the text:

- How good an understanding of the points raised does this person have?
- How believable do you find these points?

Group Statistics

	AUTH	N	Mean	Std. Deviation	Std. Error Mean
UND	high	20	4.60	1.43	.32
	low	20	3.40	1.39	.31
BEL	high	20	4.35	1.57	.35
	low	20	3.35	1.60	.36

Table 7.1 Mean scores for pilot test of texts

It can be seen that the mean scores on both understanding and believability are higher on the ‘high authority’ text than on the ‘low authority’ text.

A t-test showed that the texts differed significantly on understanding ($t = 2.690$ (1,38), $p = 0.005$) and believability ($t = 1.999$ (1,38), $p = 0.026$).

7.3 Main Study

7.3.1 Method

Participants:

Opportunity sample of 62 (17 male, 45 female), aged 16 –65, consisting of students and visitors to Goldsmiths College.

Design:

This study used an independent samples 2 x 3 design, with authority (high/low), and source gender (male/female/neutral) as IVs. Measures were taken of attitude change post message exposure, source ratings, and memory for the message (amount/accuracy)

Materials:

The persuasive communication was designed to appear as messages in a group discussion. For this reason, the message was presented in two parts (this is discussed further in the Procedure). The PsiMail program used in Studies 1 and 2 was used for this (described in Chapter 1). The texts used are given in Appendix C.

The names chosen for the source were taken from a list of age-nonspecific names (Kasof, 1993):

- Male – Bob
- Female – Mary
- Neutral – SN (initials only)

The questionnaires used are given in Appendix C.

Procedure:

Participants were randomly assigned to conditions, and asked to complete an attitude questionnaire.

Participants were told that they would be presented with two messages on the screen, after which they would be asked for their impressions of the author. They were asked to read the first message, and once they indicated they had read this, the second message was brought up on the screen. In this way, they had ample opportunity to observe the name attached to the messages, although their attention was only indirectly drawn to this through the selection of the second message for reading, as care was taken to avoid identifying the gender of the author in any instruction. Immediately after reading they were asked to complete a questionnaire rating the author.

Participants were then asked to recall as many of the key points of the text as possible, with no time limit on recall.

After completing a second attitude questionnaire, all participants were fully debriefed.

7.4 Results

7.4.1 Attitude Change

The mean attitude scores for pre- and post-message exposure are given in Table 7.2.

Authority	Source Gender	N	Pre Message	SD	Post Message	SD
High	Male	10	35.55	4.95	35.36	4.41
Low	Male	10	36.18	2.93	35.36	4.54
High	Female	10	38.60	3.06	36.90	4.07
Low	Female	10	37.50	4.14	36.70	4.19
High	Neutral	11	37.70	5.66	37.00	3.20
Low	Neutral	11	38.40	2.95	37.10	3.21
			37.27	4.08	36.37	3.90

Table 7.2: Mean Attitude Scores

Note: a higher score indicates a more positive attitude

In all conditions the trend is for attitude to change in the direction indicated by the message, which would suggest that the message does have some influence overall, without taking into consideration either authority or source gender variables. This can be seen graphically in Figure 7.1.

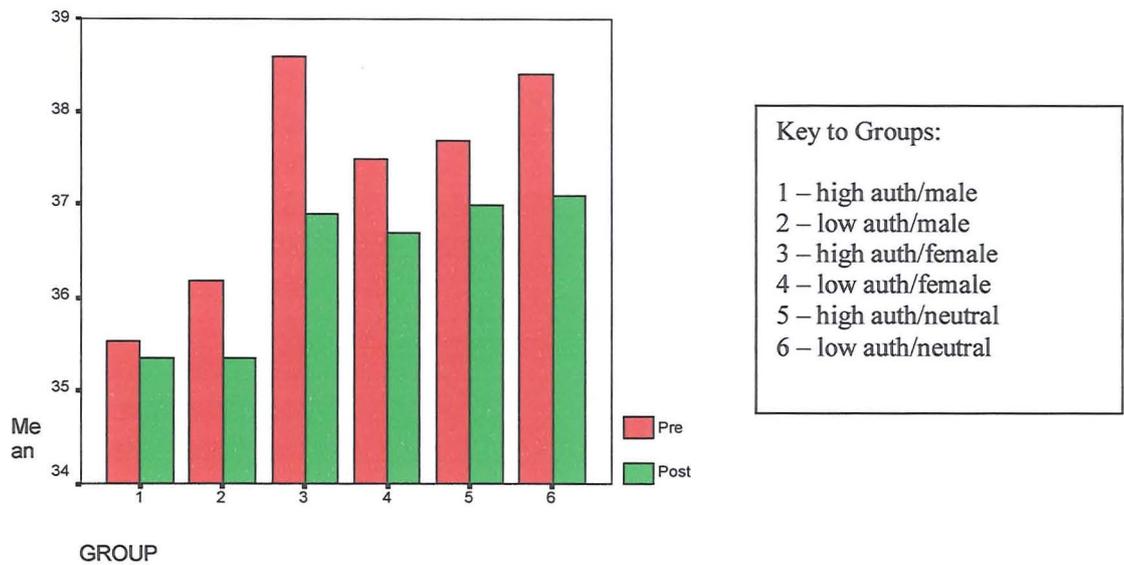


Figure 7.1 Mean attitude scores pre/post message exposure

A repeated measures ANOVA was carried out. Although the means indicate that some attitude change has taken place, this does not reach significance ($F = 3.427$, $(1,50) p = 0.070$). Furthermore, neither authority (high/low) nor source gender appear to have any effect on attitude change here. However, it is possible that a longer period of time is required for the full effects of such influence attempts to become evident, and a further survey at a later time could show greater attitude change.

7.4.2 Source ratings

The results found regarding source ratings give a much clearer picture. It can be seen from looking at Table 7.3 (also showing graphically in Figure 7.2) that higher ratings were given on all questions in the high authority conditions than in the low authority conditions. This would suggest that language style, in terms of how clear and authoritative it appears to be, does influence the extent to which the author is

viewed in a positive way (seen as having a greater understanding of the issue, for example). (For an inferential test using ANOVA, see below).

		Report				
authority		Understanding of topic	Fair and honest	Similarity	Liking	Leadership
high	Mean	5.17	4.22	4.61	4.00	2.94
	N	18	18	18	18	18
	Std. Deviation	1.295	1.865	1.420	1.495	1.514
low	Mean	3.17	4.83	5.61	4.28	4.56
	N	18	18	18	18	18
	Std. Deviation	1.689	1.339	1.614	1.526	1.917
Total	Mean	4.17	4.53	5.11	4.14	3.75
	N	36	36	36	36	36
	Std. Deviation	1.797	1.630	1.582	1.496	1.888

Table 7.3 Source ratings for high/low authority conditions

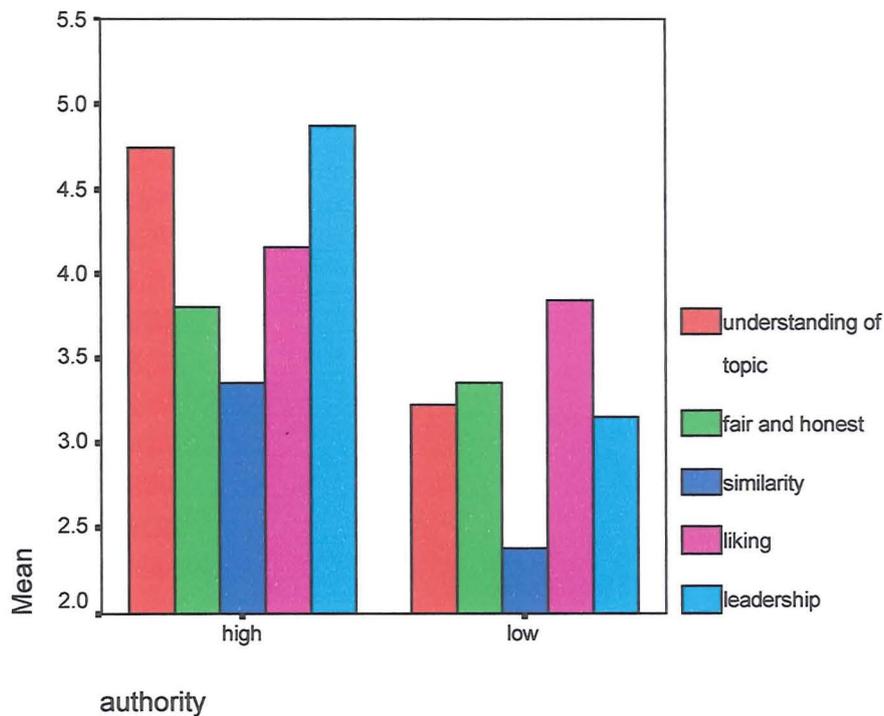


Figure 7.2: Source ratings for high/low authority conditions.

It can be seen from looking at Figure 7.3 that the source gender, represented solely as a name, also appears to have an effect on the positiveness of source ratings, although the extent to which this occurs is dependent on the particular aspect under consideration. Similar ratings are received for each name on Understanding of topic and Leadership, which would suggest that gender is not of importance here. However, both Similarity and Liking show a similar pattern, in that the neutral name receives a far more positive rating, and the female name a less positive rating, which would suggest that the name alone is having some effect on the respondents' perceptions of the source.

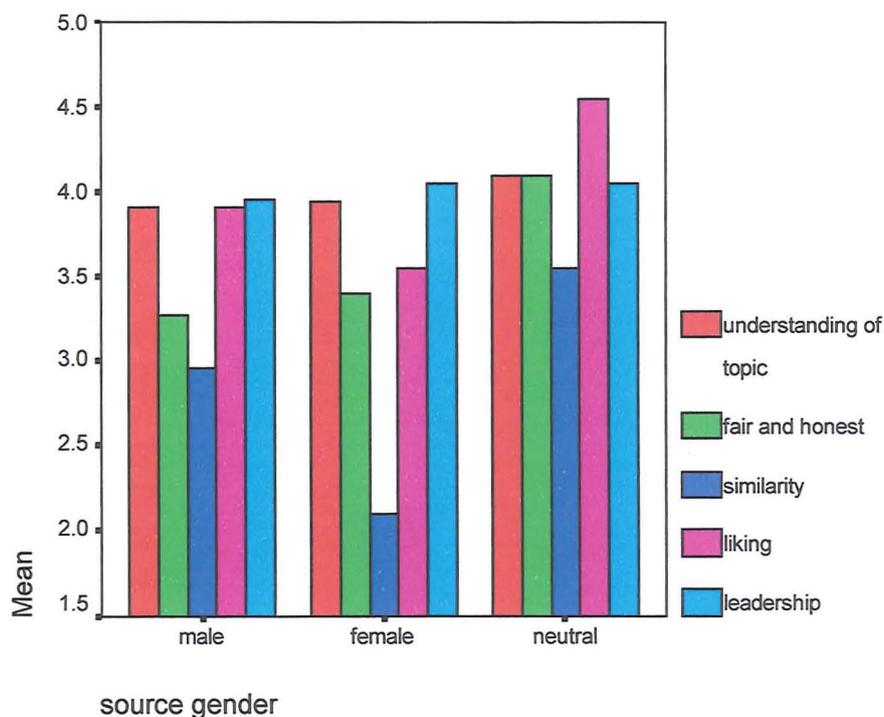


Figure 7.3: Source ratings by source gender

The ratings given on each question correlate highly, with significant positive correlations for Fair and honest with Similarity ($r=0.564$, $p=0.001$), Liking ($r=0.438$, $p=0.008$), and Leadership ($r=0.527$, $p=0.001$). However, Understanding of topic has a significant negative correlation with the other variables (Fair and honest $r=-0.519$, $p=0.001$; Similarity $r=-0.700$, $p=0.001$; Liking $r=-0.349$, $p=0.037$; Leadership

$r=-0.686, p=0.001$). A repeated measures ANOVA was carried out to look at the extent to which the source rating is moderated by authority and by gender factors. This showed that level of authority does have a significant effect on source ratings ($F = 4.034 (1,50), p = 0.050$), as suggested by Figure 7.2. However, although the means might suggest that the source gender does have an effect, this does not reach significance here ($F = 0.084 (1,50), p=0.920$).

An unanticipated result found here is that participant gender (at least for the present sample) has a significant main effect ($F = 5.404 (1,50), p = 0.024$), although there is not a significant interaction with the other variables. A t-test was carried out as further clarification, and this showed a significant difference between the ratings for male and female participants ($t = -2.277, p = 0.026$). It would appear from looking again at the means that this is due to female participants giving the source generally higher ratings than those given by male participants. This is shown graphically in Figure 7.4.

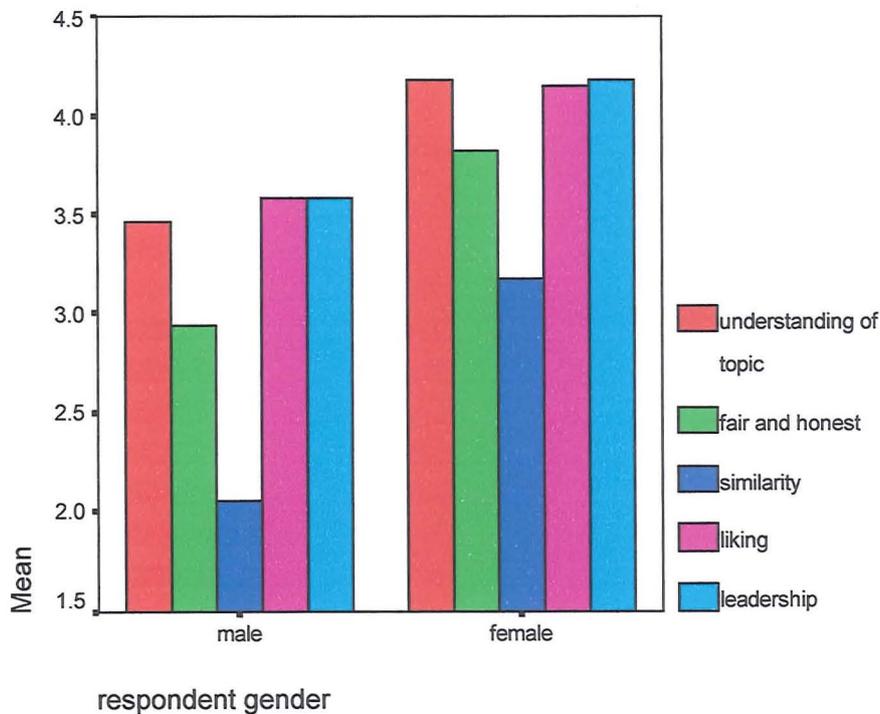


Figure 7.4 Source ratings by male/female respondents

7.4.3 Recall

The mean scores for recall, and for errors in recall are given in Table 7.4. As the persuasive message was presented as two separate messages within a discussion, the scores for recall are formatted in the same way.

		Report			
authority		message 1 errors	message 1 score	message 2 errors	message 2 score
high	Mean	.61	3.13	.26	1.48
	N	31	31	31	31
	Std. Deviation	.92	1.91	.51	1.18
low	Mean	.68	2.90	.35	1.26
	N	31	31	31	31
	Std. Deviation	.94	1.68	.61	1.18
Total	Mean	.65	3.02	.31	1.37
	N	62	62	62	62
	Std. Deviation	.93	1.79	.56	1.18

Table 7.4 Mean scores on recall task

It can be seen from Table 7.5 that overall there are marginally fewer errors and higher recall in the high authority condition than in the low authority condition, although this difference is a small one. This is shown graphically in Figure 7.5.

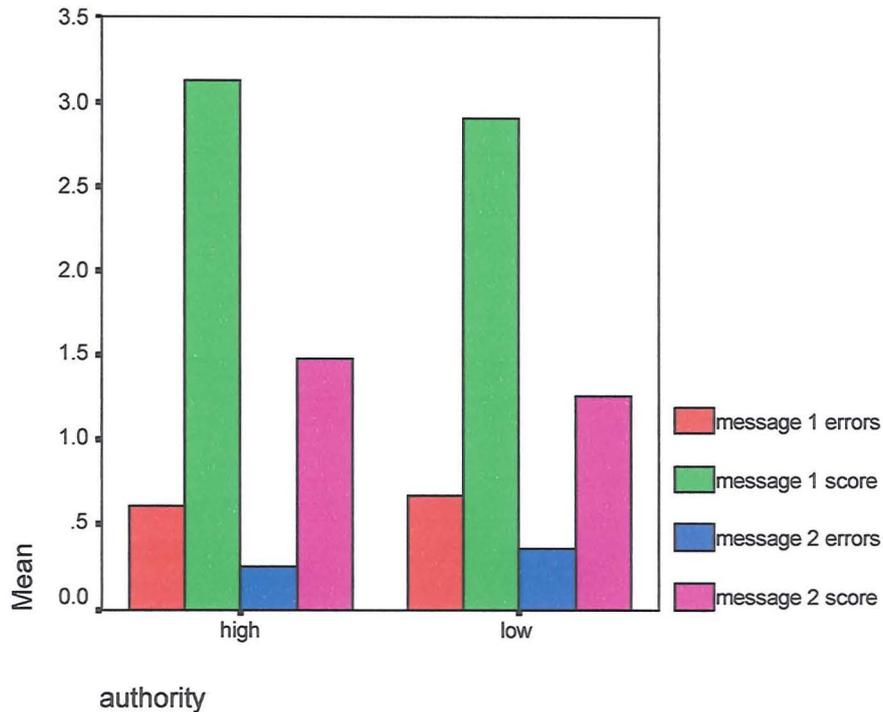


Figure 7.5: Mean recall and error scores

A One-Way ANOVA was carried out, and no difference was found between the conditions for either recall or errors.

7.4.4 Content Analysis – Perceptions of Source

An analysis of the responses to the question ‘Please give your overall impressions of this person’ was carried out, categorising the responses into positive, negative and neutral, with regard to whether the impression recorded was positive towards the source, negative, or neutral. The responses were also put into the General Inquirer program (which disambiguates text, and categorises words) to obtain tallies of the positive and negative words in each response (this software is described on the website www.wjh.harvard.edu/~inquirer). These tallies were then used as a reliability check on the initial coding (so that, for example, a response initially coded as positive would contain words coded as positive by General Inquirer, and none coded as

negative). As the majority of responses contained only one of these categories, the responses were analysed as complete units, rather than further breaking them down into individual statements. The frequency of responses in each category is given in table 7.6.

content analysis

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	positive	16	25.8	26.2	26.2
	negative	37	59.7	60.7	86.9
	pos/neg	6	9.7	9.8	96.7
	neutral	2	3.2	3.3	100.0
	Total	61	98.4	100.0	
Missing	System	1	1.6		
Total		62	100.0		

Table 7.5 Frequency of responses

It can be seen from this that overall there is a (perhaps surprising) tendency towards negative statements, with 60.7% (37 out of 61) responses being negative in tone. A similar result is found when the responses are separated in order to look at the effect of the language and source gender conditions, and this is shown graphically in figures 7.6 and 7.7.

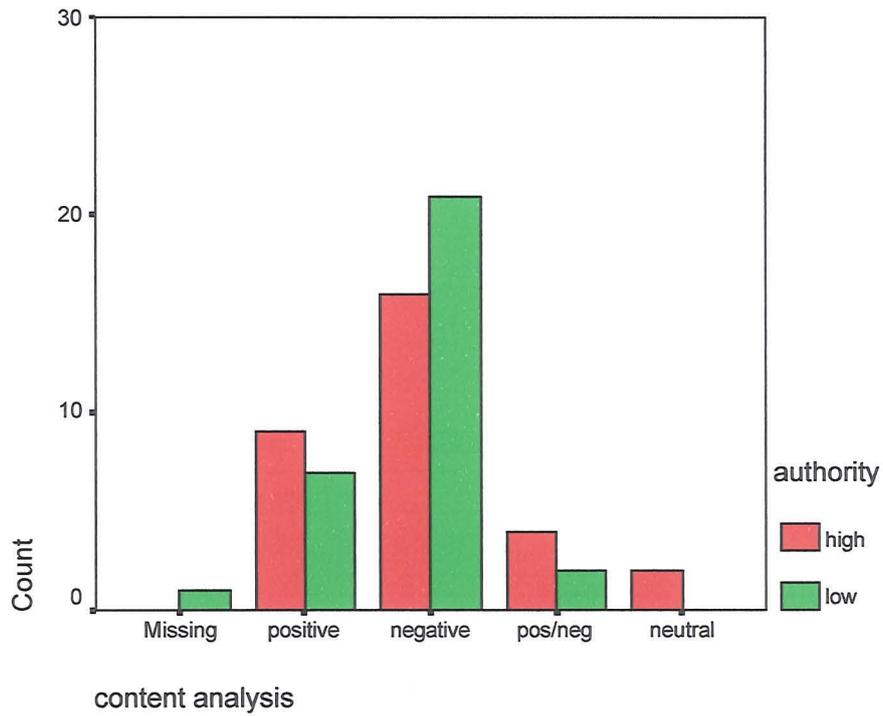


Figure 7.6 Category frequencies by language condition

It can be seen from figure 7.6 that language style does seem to have some effect on the perception of the source, as the high authority condition received more positive responses, although overall there is still a tendency towards negative responses.

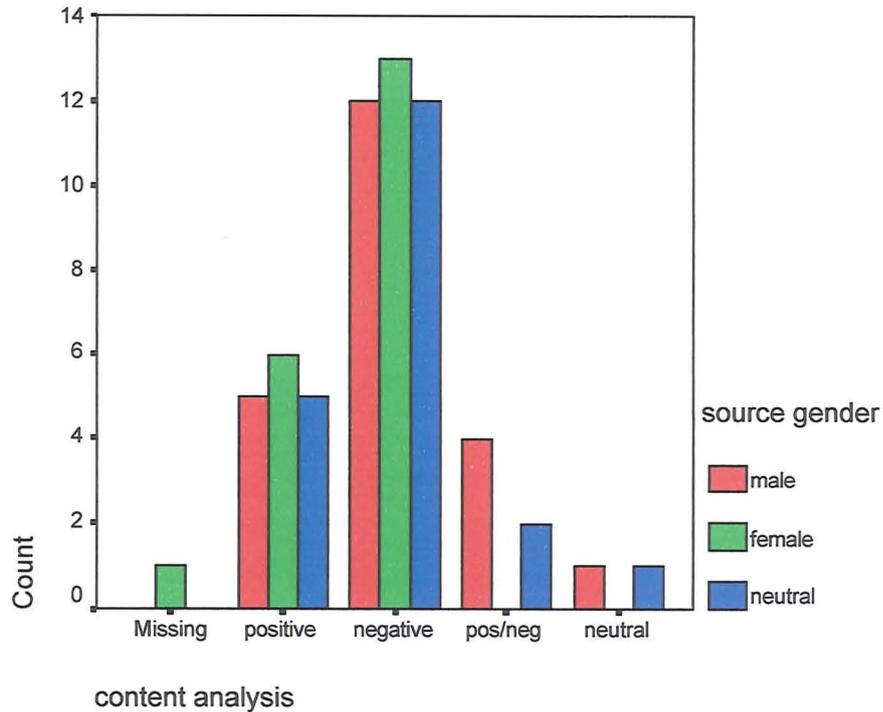


Figure 7.7 Category frequencies by source gender

It would appear from figure 7.7 that source gender in this instance did not have any real effect on the way in which the source was perceived, as the frequency of responses is very similar for each. It should be noted that only 7 respondents correctly identified the appropriate source gender, with the majority of respondents not specifying any gender (for example, using terms such as ‘this person’, ‘he/she’). Given the low level of identification, no further analysis of this specific point was made.

An analysis of the correlations between response frequency and the specific source ratings given was carried out. This showed no significant correlation between the responses for the open question and the specific source ratings given, although the source ratings do generally correlate highly with each other. This would suggest that the open question is not related directly to the specific source categories included within the questionnaire (namely understanding of topic, fairness, similarity, liking, and leadership).

7.5 Discussion

The results found show that no significant attitude change has taken place, although the means do show some change occurring post-exposure. It would appear from this that the message has had no effect on attitudes. Furthermore, no significant effects were found for either level of authority or source name, and so it seems that the source factors considered here have no real effect on attitude change.

There are limitations within this study which should be taken into consideration when looking at the results found. There was only a short period of time between attitude measurement pre- and post-exposure, which means that there was little time for the message to be evaluated. It may well be the case that given a longer period of time (approximately 15-20 minutes) before measuring attitudes post-exposure, a different result would be found.

It is also important to remember that attitude (and behavioural) change itself is actually the end product of the influence process, and it may be that source variable effects would be found at earlier stages in the process, particularly if these effects are subtle. In this regard it is necessary to consider how perceptions of the source may be moderated by these variables, as this then feeds into the extent to which any influence will occur. Analysis of the source ratings indicates that language style does have a significant effect on how positively a source is rated, in that the high authority condition had higher mean ratings for all the questions. This is not entirely consistent with the findings for attitude change, as it appears here that it is not just what is said that is important, as the content was the same for both high and low authority conditions, rather it is how it is said that is of greater significance in forming perceptions of the author.

However, it is important to note that these findings relate to the specific source variables given in the questionnaire. When the open question is considered, it can be seen that overall respondents received a negative impression of the source, irrespective of the tone of the message. It is only with the further thought required to

rate specific aspects of the source that a different picture emerges. A possible explanation is that the open question elicited the first automatic reaction to the message, and the negative impressions raised by the content, whereas the specific questions required a more considered response. Walther & Burgoon (1992) argued that more time is required for CMC group interactions, in order for groups to reach an understanding. In some respects, the source evaluations here may be showing a similar requirement for extra time in order to reach a more balanced evaluation.

Language style may be of importance here because it allows further inferences to be made, such as the age or probable level of education of the writer. These inferences can have a significant impact on perceptions of expertise. A message that is clearly written gives an impression of better understanding of the subject, for example, whereas a poorly written, unclear message gives the impression that the author is uncertain, and unlikely to be an expert in this area. Such assumptions may be implicit, rather than being explicitly formed, and it is not certain that this occurred here. From looking at the comments made, very few explicitly mentioned a possible age for the source, although education was mentioned by several, either directly or indirectly. Comments in the low authority condition made reference to the writer's lack of understanding or knowledge, and one explicitly referred to them as an undergraduate. In order to clarify the extent to which such assumptions are made, it would be necessary for future research to consider these questions directly, with explicit questions on the perceived education or age of the source.

A test of recall was included here as Hovland et al (1953) suggest that in order for a message to be persuasive it must be comprehended and retained. It was anticipated that language style would have an effect on the ease of recall of the message, as the high authority style would present the message clearly and directly, without hedges or tag questions obscuring the information. However, only a small difference was found, and it did not reach significance. As only a short period of time passed between message exposure and the recall test, it is possible that these effects would only be found after a longer period.

A further variable to be considered when looking at the source ratings is that of the name of the source. As discussed previously, the name can provide information related to gender or age, and these assumptions can give rise to gender based stereotypes (Matheson & Zanna, 1990). If the recipient of a message has particular stereotypes relating to gender or to age, the cues implicit in a name could have an effect on their perception of the message as a whole.

The results here show no significant effect of the name on the source ratings, which would suggest that the name has no effect on these judgements. It is possible that this is due to the use of a single overall source rating for the analysis, as the means do show that there are some differences on some but not all of the various elements within this source rating. The main differences here are for ratings of similarity and liking, with the neutral name receiving the most positive ratings, and the female name receiving the least positive ratings. If the assumption is made that all names give rise to some stereotypical assumptions, then it could be argued that a gender neutral name is least likely to have a negative stereotype attached, and hence will be viewed more positively.

It should be noted, however, that very few comments actually specified a gender for the source, and so it is not clear whether participants noted the name given to the source. Although this information was available on screen, participants did not have their attention explicitly drawn to it, and may not have paid any attention to the name attached to the message. As the message was presented in two parts, as though it was actually two distinct messages, there was an opportunity for the participant to observe the name with the selection of the second message. However, it would seem probable that this information was not particularly salient to participants, and their attention would be focused on the content instead, to enable them to complete the task of forming impressions of the writer. This would then suggest that they were actually unaware of the source name. In a genuine online group, this information may be of far more relevance, as it can provide a guide to selecting which messages in a group are worth reading. This is a question which should be directly addressed by future research.

An unanticipated finding here also relates to gender, in that male and female participants gave significantly different source ratings. Female participants gave higher ratings on every aspect of the source than the male participants, although this result should be viewed with caution given the small number of male participants within this study. However, this is consistent with Adrianson's (2001) finding that female perceptions tend to a more positive direction than those of males.

These results have implications for the development of online discussion groups. Consistent with recent research (e.g. Spears et al, 2002), it is clear that the early claims for online equality have proved unfounded. Although many of the cues used to evaluate sources are unavailable online, enough are transmitted to allow status judgements to be made, and the source of a message is still a factor to be considered in any persuasive communication.

The implications for women online are perhaps more serious, in that it is possible that not only will their ideas not be given equal consideration, but they may also be subject to more influence attempts, as they are more positive towards online sources. This may be because there are greater numbers of men online, and such communication is male-dominated (as Herring, 1999, points out). Women may feel somewhat unsure in this type of situation, and so the potential advantages of a medium which initially appears to offer the chance of equal participation is considerably diminished, perhaps even non-existent.

7.6 Summary Of Key Points

- This study focused on source characteristics available online (the 'who' in Hovland et al.'s 1953 formulation), and the potential impact on the influence process.

- As CMC is primarily text-based, cues come from the message itself – for this study two particular aspects were considered, namely language style and source gender (operationalised as name)
- No significant attitude change was found, even though the means did show a general trend in the direction of the message post-exposure.
- Perceptions of the source were significantly affected by language style, such that a high authority language style led to a more positive view of the source.
- The high authority language style did not have a significant effect on ease of recall of the message.
- The source gender (name) appeared to have no effect, either on the source ratings or on attitude change. However, this would appear to be due to a lack of awareness of the different names used.
- This study has implications for online discussion groups, as status cues are still available, and therefore communication is not judged purely on its own merits. Other variables such as language style appear to have an important effect, quite separate from the actual content.
- The following chapter discusses a web-based survey on online credibility judgements, and considers the different variables actually viewed as important by online participants.

CHAPTER 8

STUDY 5 – PERCEPTION OF ONLINE SOURCE CHARACTERISTICS

8.1 Background

Study 4 (Chapter 7) looked at the impact of source characteristics on persuasion, in a laboratory setting. The results from this study suggest that source variables such as language style, as well as recipient variables (in this instance, respondent gender) have some effect on the way a source is perceived. For example, a more authoritative language style means that a message is viewed as being more credible. As computer-mediated communication (CMC) is not purely a lab-based phenomenon, it is important to consider the extent to which members of online discussion groups consider various source variables to be of importance in judging source credibility.

The use of an online survey means that a wider variety of participants can be recruited, and a more representative sample of online users can be obtained. This then allows consideration of the way in which source variables are perceived online, and also the extent to which the results of the previous study can be considered as ecologically valid. At the same time, the present study extends the findings on actual source effects (e.g. Chapter 7) to the *perceived* effects of source characteristics.

Results from the previous study suggest that there are two main aspects to consider when looking at source credibility judgements, which can be defined as the source and the message. Information about the source of a message can be derived either from information available within the message (i.e. name, email address), or

from previous interactions with an individual. This gives rise to the following hypotheses:

H1 – The choice of online name will be rated as important in source credibility judgements

H2 – The perceived gender of a sender will be rated as important in credibility judgements

H3 – The email address of a sender will be rated as important in credibility judgements

H4 – The extent of previous communication with a sender will be rated as important in credibility judgements.

Further information can also be derived from the message content, and the previous study suggests that language (i.e. language style) is an important issue here. This therefore gives rise to the following hypothesis:

H5 – The language style used will be rated as important in credibility judgements

8.2 Method

8.2.1 Participants:

Sample of 167 participants (81 male, 86 female), aged 18-65. Full demographic details are given in section 8.3.1.

8.2.2 Design:

This study used a correlational design, looking at source credibility variables.

8.2.3 *Materials:*

This study used an Internet-based survey – a printout of the web pages is included in Appendix D.

After an initial question on the frequency of participation in online discussion groups, the remaining questions were in 3 sections. It was indicated at the start that these questions related to messages where the recipient had little or no prior knowledge of the sender.

An open question was given - ‘What factors do you consider when deciding on the credibility of a message?’

This was followed by a list of factors to be rated on a scale of 1-7 (where 1=not at all important, and 7=extremely important) for their importance in judging a message. These factors were:

- ◆ Name
- ◆ Email address (i.e. whether academic, corporate or personal)
- ◆ Gender of person
- ◆ Previous comm with the person
- ◆ Validation by others
- ◆ Own experience with topic
- ◆ Language style
- ◆ Spelling

Finally, brief demographic questions were asked, requesting:

- ◆ Age group
- ◆ Sex
- ◆ Highest level of education
- ◆ Current occupation

8.2.4 Procedure:

A preliminary list of potential respondents was compiled, consisting of individuals known personally as participants in online conferences. An email was sent requesting assistance with the survey, and giving the website address (URL).

The introductory page on the website gave a brief background, and requested respondents to pass on the URL to others.

The website was set up so that completed questionnaires were automatically returned via email once the 'Send Answers' button was pressed.

8.3 Results

A total of 201 responses were received. The following were removed from the analysis: incomplete forms (n=17), duplicates (identified from the host of the sender, with a second check made of the content) (n=4), responses in languages other than English (n=1), respondents who had never taken part in online discussions (n=10), and respondents under 18 (n=2). This left a total of 167 responses which were used in the analysis.

8.3.1 Demographics:

This sample was 48.5% male, 51.5% female. These proportions are somewhat dissimilar to earlier surveys, for example Martinez (2000) found an Internet population that was 61.3% male and 38.7% female. However, it can be seen from the National Statistics Omnibus Survey produced by the Office of National Statistics (ONS, 2004) that increasing numbers of women are going online. The ONS survey

found that at April 2004, 52% of women surveyed had used the Internet in the past 3 months, as had 62% of men.

The majority of the respondents to this survey were in the age range 26-45 (62.2%). The remainder were fairly evenly spread between the 18-25 and 46-65 groups. The numbers in each age range are given in Table 8.1.

AGE					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	32	19.2	19.2	19.2
	26-35	52	31.1	31.1	50.3
	36-45	52	31.1	31.1	81.4
	46-55	24	14.4	14.4	95.8
	56-65	7	4.2	4.2	100.0
	Total	167	100.0	100.0	

Table 8.1 – Age of respondents

Earlier surveys (Martinez, 2000) indicated that the average age of Internet users was 35. However, internet use is increasing rapidly among young users, with data from the National Statistics Omnibus Survey (ONS, 2004) showing that 86% of 16-24 year olds surveyed had used the internet in the previous 3 months, compared with 78% the previous year, whereas for other age groups the numbers were fairly consistent, with 74% of 25-44 year olds, and 61% of 45-54 year olds having used the internet. The Oxford Internet Survey (2003) found that 98% of those of school age used the Internet, as did 67% of those of working age.

The majority of respondents had a university education (74.3%). It should be noted, however, that this does not differentiate between past and present students, nor does it state whether a degree was obtained. Only 13.8% had only a secondary school education. The numbers for each educational level are given in Table 8.2. It should be noted that some respondents' education is defined by age and will eventually reach a higher level – for example, some of the 'university' students are still at university. Data from the Oxford Internet Survey (2003) shows high levels of use among those

with degree level qualifications, although it should be noted there is considerable use among those with no qualifications (51% of this group used the Internet).

EDUCAT

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid secondary	23	13.8	13.8	13.8
6th form	20	12.0	12.0	25.7
university	94	56.3	56.3	82.0
higher degree	30	18.0	18.0	100.0
Total	167	100.0	100.0	

Table 8.2– Highest educational level of respondents

70.1% of respondents said they participated in online discussions at least once a day, with a further 13.2 taking part at least once a week. 79.6% of the sample can be thought of as frequent participants (defined here as participating more than twice a week). Full details of participation rates are given in Table 8.3.

FREQUENC

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid more than 2/day	2	1.2	1.2	1.2
daily	115	68.9	68.9	70.1
more than twice a week	16	9.6	9.6	79.6
weekly	6	3.6	3.6	83.2
monthly	3	1.8	1.8	85.0
occasionally	25	15.0	15.0	100.0
Total	167	100.0	100.0	

Table 8.3 – Frequency of online participation

Possible correlations within these variables were considered, and no substantial nor statistically significant correlations were found between the gender of respondents and their age, education or frequency of use, which would suggest that males and females do not differ significantly in respect of these particular variables. The only subsequent statistically significant correlation to be found here is a small negative one ($r = -0.158, p = 0.041$) between age and frequency. The response rates

for each age group are shown in Table 8.4, and also graphically in Figure 8.1, to clarify the relationship between these variables.

	more than 2/day	daily	more than twice a week	weekly	monthly	occasionally
	%	%	%	%	%	%
18-25	50.0%	15.7%	6.3%	33.3%	33.3%	36.0%
26-35		28.7%	43.8%	50.0%	33.3%	32.0%
36-45	50.0%	36.5%	25.0%	16.7%	33.3%	12.0%
46-55		14.8%	18.8%			16.0%
56-65		4.3%	6.3%			4.0%

Table 8.4 Frequency of participation for each age group

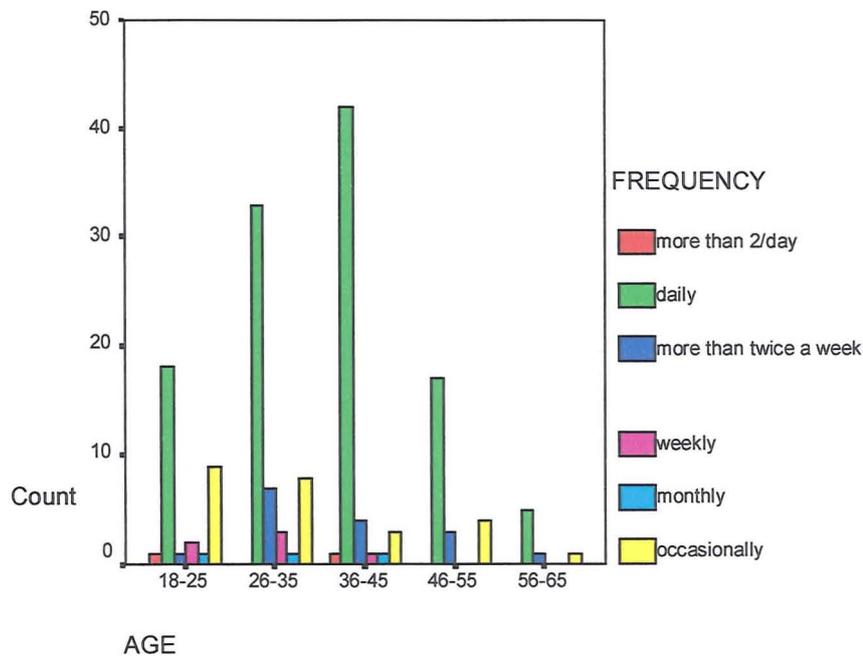


Figure 8.1 – Relationship between age and frequency of participation

It can be seen from this that the older age groups (46-65) tend to participate with lesser frequency, with the highest participation rates in the age group 36-45. In particular, the age distribution of daily participants (constituting the majority of the sample) is uni-modal, with a peak in the middle age group.

Overall, the demographics of this sample are consistent with those of previous surveys, and hence it is possible to extrapolate from the results here with greater confidence.

8.3.2 Source Characteristics:

Two main analyses were carried out on the source variable data, looking first at the importance ratings given to the specific variables, and then considering the responses given in the open question on what variables were considered important in considering validity of messages.

The mean ratings for the importance ratings are given in Table 8.5. It can be seen from this that these particular variables are not considered equally important for decisions on source validity. The highest mean rating was given to ‘own experience with topic’, closely followed by ‘previous communication with person’. ‘Language style’ was also rated highly. By far the least important variable, in terms of mean rating, was ‘gender’.

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
email address	167	1	7	3.19	1.95
gender	167	1	7	1.81	1.38
language style	167	1	7	5.09	1.43
name	167	1	7	3.44	1.96
own experience with topic	167	1	7	5.59	1.30
previous comm with person	167	1	7	5.25	1.59
spelling	167	1	7	4.27	1.74
validation by others	167	1	7	4.34	1.57
Valid N (listwise)	167				

Table 8.5 – Mean ratings of source characteristics

It is possible that the extremely low rating for ‘gender’ found here is due to social desirability rather than being an accurate reflection of the relative importance of

this factor, although it can be seen from Table 8.5 that responses did cover the same range as that found for the other factors rated. From looking at the frequency of responses, shown in Table 8.6, it can be seen that the majority (83.2%) rated this as unimportant (if those at the midpoint of the scale are included, the equivalent of a noncommittal response, this figure rises to 94.6%), and only 5.4% considered this factor to be of some importance.

gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	111	66.5	66.5	66.5
	2	20	12.0	12.0	78.4
	3	8	4.8	4.8	83.2
	4	19	11.4	11.4	94.6
	5	5	3.0	3.0	97.6
	6	2	1.2	1.2	98.8
	7	2	1.2	1.2	100.0
	Total	167	100.0	100.0	

Table 8.6 Frequency of responses on 'gender'

It could be argued that if social desirability was the main issue here, then an even greater proportion would have given this factor the lowest possible rating, and so it would appear that although this may have had some influence here, it is not the sole reason for the low rating that 'gender' received in this study.

An analysis of the correlations was carried out, to look at the relationship between the source variables, and any possible relation with the demographic variables. This showed that none of the source variables act in isolation; there are some correlations for all the variables considered here.

It is interesting to note, however, that only sex of respondent and frequency of participation correlate significantly with the source ratings. There is no significant correlation here between these variables and either age or education.

Respondent gender correlates significantly with '[source] gender' ($r_{pb}=0.161$, $p=0.038$), 'own experience' ($r_{pb}=-0.156$, $p=0.043$) and 'previous comm' ($r_{pb}=-0.179$, $p=0.021$). Mean ratings of the source variables are shown graphically in Figure 8.2, in order to clarify the way in which these variables vary with respondent gender. It can be seen from this that females consider 'gender' more important than males (although neither considers it especially important), and that males rate 'own experience' and 'previous comm' more highly.

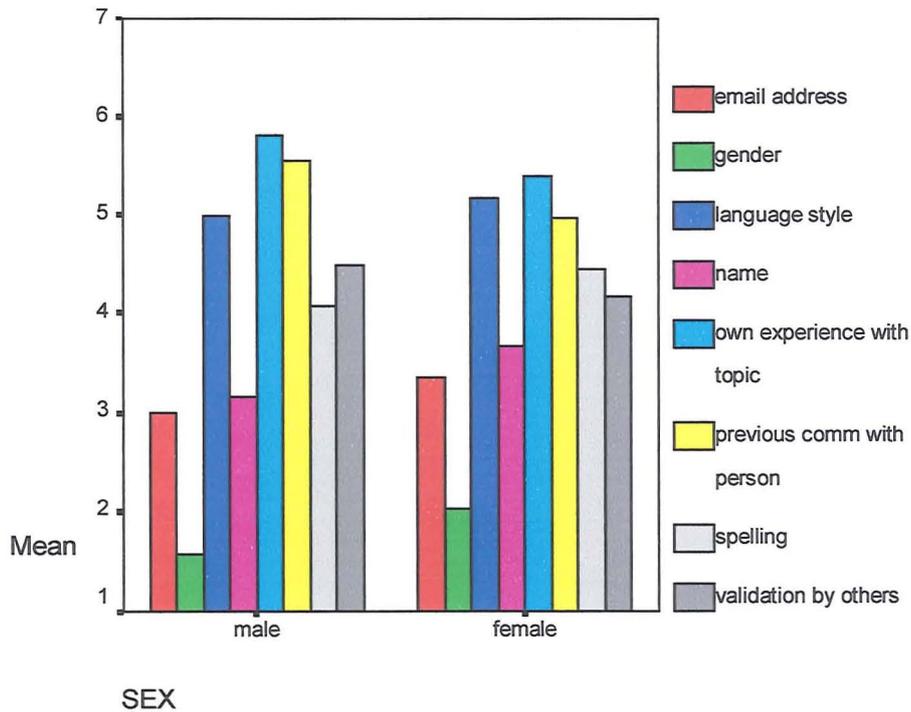


Figure 8.2 Ratings of source characteristics by respondent gender

There are also source variable correlations with frequency of participation. A positive correlation was found with 'email address' ($r=0.197$, $p=0.011$) and 'gender' ($r=0.210$, $p=0.006$), and a negative correlation with 'language style' ($r=-0.203$, $p=0.008$). This is shown graphically in Figure 8.3. It can be seen from this that lower ratings were generally given for 'email address' and 'gender' with higher frequency of participation, whereas higher ratings were given for 'language style' with higher rates of participation.

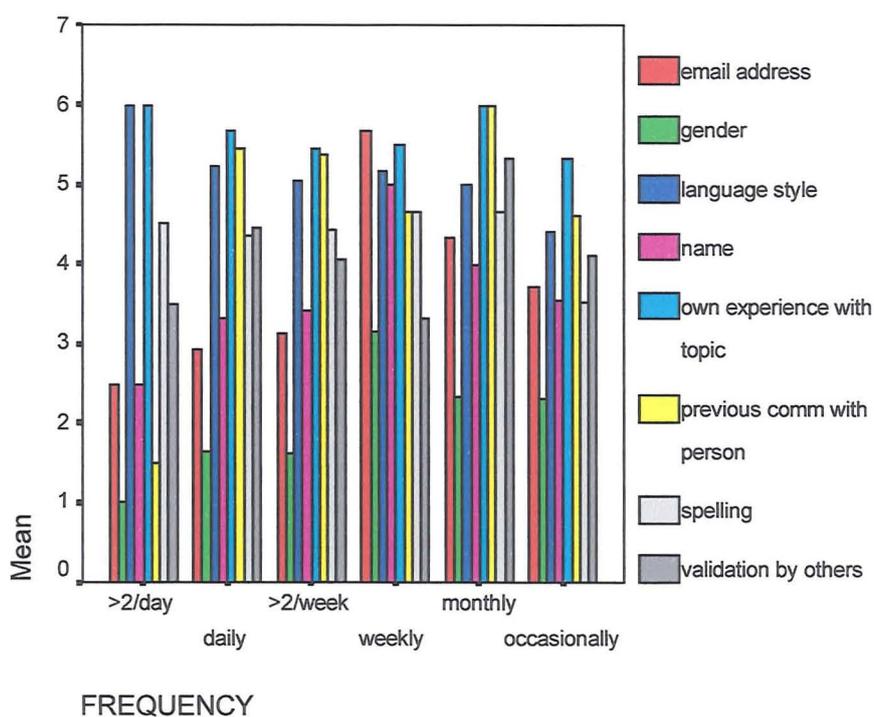


Figure 8.3 Ratings of source characteristics by participation frequency

	>2/day		Daily		>2/week		Weekly		Monthly		Occasionally	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Email address	2.50	2.121	2.93	1.848	3.13	2.156	5.67	1.366	4.33	0.577	3.72	2.031
Gender	1.00	0.000	1.65	1.264	1.63	1.408	3.17	2.137	2.33	1.528	2.32	1.492
Language style	6.00	0.000	5.23	1.377	5.06	1.482	5.17	0.753	5.00	1.000	4.40	1.708
Name	2.50	2.121	3.33	1.881	3.44	2.476	5.00	1.673	4.00	3.000	3.56	1.873
Own experience with topic	6.00	1.414	5.66	1.357	5.44	1.209	5.50	1.517	6.00	0.000	5.32	1.180
Previous comm with person	1.50	0.707	5.45	1.359	5.38	1.455	4.67	1.366	6.00	1.000	4.60	2.217
Spelling	4.50	0.707	4.37	1.734	4.44	1.896	4.67	0.516	4.67	1.528	3.52	1.873
Validation by others	3.50	2.121	4.46	1.483	4.06	1.806	3.33	1.366	5.33	0.577	4.12	1.833

Table 8.7 Mean ratings of source characteristics for each participation frequency (for Ns see Table 5.3)

8.3.3 *Content Analysis*

The question ‘What factors do you consider when deciding on the credibility of a message?’ received a large variety of responses, which varied considerably in length. A number of responses were uncodable, for example where the response was ‘Guessing’, or ‘I don’t really know’. The remainder were coded into a large number of categories, which were then assigned to 6 ‘higher order’ categories. A small sample of these responses were subsequently coded by a second judge, using the categories given here, with discussion on any ambiguities, so that agreement was reached on all categories.

The response categories, and frequency of each response, are given in Table 8.8.

Category	Response category	Frequency	%
Language	Language style	43	25.75
	Spelling	33	19.76
	Tone	30	17.96
	Grammar	27	16.16
	Clarity	8	4.79
	Length	4	2.39
	Coherent (makes sense)	7	4.19
	Punctuation	3	1.8
	Humour	3	1.8
	Jargon	1	0.6
Sender	Knowledge of sender	27	16.16
	Posting history	24	14.37
	Frequency	4	2.39
	Length of acquaintance	2	1.2
Message content	Content	24	14.37
	Relevance	12	7.18
	Own experience	19	11.38
	Objective/purpose	8	4.79
	Topic	9	5.39
	Quality of argument	8	4.79
	Level of knowledge	6	3.59
	Factual accuracy	6	3.59
	Interest	4	2.39
	Internal consistency	4	2.39
	Level of detail	1	0.6
	Personal relevance	1	0.6
	Identification	Email address	20
Name		16	9.58
Affiliation		3	1.8
Signature file		3	1.8
Resume		1	0.6
External validation	Validation from external source	17	10.18
	Response of others	11	6.59
	Group	10	5.99
	Validation by others	7	4.19
	Similarity to others	1	0.6
Netiquette	Formatting	10	5.99
	Absence of flaming	6	3.59
	Use of capitals	4	2.39
	Netiquette	3	1.8
	Quoting	2	1.2
	Subject/Header	2	1.2
	Emoticons (smilies)	1	0.6
	Repeated asking of FAQs	1	0.6

Table 8.8 – Content analysis categories

If frequency of response is taken as a measure of importance, it can be seen that different ratings emerge from this question than from the importance ratings of the specific variables listed.

In terms of frequency, language categories appear to be most important, with the top 4 responses relating to this, whereas in the importance ratings language style came 3rd.

'Own experience' was rated as most important on the mean ratings, whereas it comes 9th in frequency, mentioned by 11.38% of respondents (n=19).

It is interesting to note that no one factor was mentioned by all respondents, and the highest response rate was only 25.75%.

8.4 Discussion

8.4.1 Demographics

As this survey was carried out on a self-selected online population, it is important to look closely at the demographics of this sample, in order to evaluate the extent to which this can be thought of as representative. The results here show that this sample is generally consistent with recent surveys of the Internet population (Martinez, 2000; ONS, 2004), particularly in terms of age and education. Although the current sample has a rather higher proportion of females than is generally found, it is interesting to note that this is almost identical to that found for new online users. However, it should be noted that the survey used here as a baseline looked at all Internet users, and did not differentiate between those using the World Wide Web, and those using the Internet in order to communicate with others.

A further comparison can be made between this sample and that obtained for Study 4, as this study acts in part as a measure of ecological validity of the prior study. The age range is similar in both studies, and the high proportion of student participants suggests that there is broadly an overall equivalence in education. It could be argued from this that there is some justification to the use of students in

experimental studies, beyond that of convenience and accessibility, in that these samples are a reasonable match for the online population in terms of education, if not always in age.

Given the relatively high level of consistency between these samples and measures of the online population, it is possible to extrapolate from these results with greater confidence, which suggests there is greater ecological validity to the results found previously, to the extent that the sample populations are similar.

8.4.2 Source Characteristics

The results show that not all source characteristics are perceived as being equally important when judging message credibility. There is also considerable diversity in the responses, which suggests that there is no overall consensus on which characteristics are the most important.

However, the mean ratings do give an overall indication of which characteristics are considered important, and hence have a greater impact on credibility judgements. The highest rating was given to 'own experience with topic', closely followed by 'previous communication with person' (supporting H4) and 'language style' (supporting H5). Furthermore, these characteristics are viewed differently by males and females, in that males rate 'own experience' and 'previous communication' more highly than females. It is not entirely clear from either this or the previous study why this may be the case. However, it has been shown previously that males are the predominant users online, and so it may be related to confidence and familiarity with the medium.

Language style is rated highly, which is consistent with H5, and ratings for this vary with frequency of participation, in that the higher the frequency of participation, the higher rating this is given. This would seem to make intuitive sense,

in that if an individual is taking part in discussions frequently, perhaps every day, this could take up considerable time, and so they would place greater emphasis on messages which are clear and easy to read. A message which is poorly written, perhaps badly spelt and with poor grammar, or is incoherent, would take up more time in attempts to understand its meaning, or could simply be ignored altogether.

This finding is consistent with the results of Study 4, which suggest that language style has a significant impact on how positively a source is perceived. CMC discussions allow greater time for messages to be considered and rewritten before placing them on public view. Given this, the assumption might be made that the sender of a poorly written message did not take time or care with writing, and hence may well be considered as an unreliable source of information.

‘Gender’ is rated overall as being the least important characteristic in judging source credibility, and so H2 cannot be supported here. Consistent with Study 4, there was a gender difference, with female respondents rating ‘gender’ higher than male respondents. It is possible that female respondents find same gender messages more credible than those from male senders, although this issue is not directly addressed here.

It should also be noted that there is a correlation between gender and frequency of participation, with higher frequency participants rating this as less important than those with low frequency of participation. It is possible that this is actually an effect of experience with online discussions, rather than simply the frequency of participation, and so this effect could diminish with increased participation or over time. With greater frequency of participation, it is possible that gender stereotypes may diminish, as greater knowledge of the other participants is gained. It may also be the case that greater emphasis is placed on the ideas rather than the source, with greater familiarity with the medium and the other participants. This might be the case with greater experience, or it may be a pre-existing difference differentiating between those who ultimately participate online more frequently. This

is a question which would need to be addressed directly, to clarify what is actually happening here.

In Study 4, source gender was operationalised as a gender specific or gender neutral name, and so 'name' was included in this study in order to consider the question of whether the name itself can have an impact separately from gender. The mean rating for 'name' was fairly low, at 3.44, which would suggest that there is little support for H1. It is interesting to note that there is a highly positive correlation in ratings for 'name' and 'gender' here, which would suggest that these variables are linked. This would seem to provide greater support for the way in which gender was operationalised in Study 4. However, given that both factors received fairly low ratings, neither would appear to be of real importance in judging credibility, and it could be argued that little attention is paid to these online.

There was also a correlation found between 'email address' and frequency of participation, such that lower frequency participants rated 'email address' as being more important. The explanation for this may depend on the reasons for the respondent's level of participation. If, for example, low frequency participants have little time for online discussions, they may screen more carefully the messages they do receive. Alternatively, if the low frequency participants are generally new users, it may be that they pay more attention to messages from familiar addresses, and this could change with increased familiarity and participation. As respondents were not asked for details of how long they had been participating in online discussions, it is not possible to resolve this issue here.

8.4.3 Content Analysis

The results from the content analysis of the open question 'What factors do you consider when deciding on the credibility of a message?' give a slightly different picture to that obtained from looking at the importance ratings. It should be noted that

no one factor was mentioned by all respondents. In fact, some respondents were unable to give any answer to this question beyond 'guessing' or 'I don't really know'. Furthermore, some respondents gave multiple responses to this question, whereas others only mentioned one or two factors. It would appear that many users may be unaware of how credibility judgements are reached, or are unable to formalise their methods in order to respond.

Six overall categories emerged from the content analysis, namely Language, Sender, Message Content, Identification, External Validation and Netiquette. These categories did not appear within the responses with equal frequency, which would suggest that these do not have an equal impact on credibility judgements.

Language occurred most frequently in the responses, providing support for H5 with language style, spelling, and overall tone of message being mentioned most frequently. It would appear from this that language is the most important factor in deciding on how credible a message is, such that the style of writing is actually seen as more significant than what is said. Language style, spelling, overall tone, and grammar were all mentioned more frequently than the actual content of the message.

'Own experience with topic' was rated as most important on the mean ratings, but in the content analysis it rated 9th in terms of frequency with which it was mentioned. One possible explanation for this is that respondents use their own experience in judgements without being consciously aware that they are doing so. As this factor was specifically listed in the questions after the open-ended question, they may have become more aware of using this as a result.

Although 'netiquette' (the guidelines for online behaviour) are generally considered very important by online users, issues relating to this were rarely mentioned by respondents in connection with credibility. It may be that netiquette issues are only considered by most users when a transgression occurs, but they do not really consider these issues otherwise.

Overall it would appear that respondents were more concerned with Language and information about the Sender, than the actual message itself. Higher response rates were found for both these categories, and rather fewer actually mentioned 'content' (14.37%). It would appear from this that online credibility depends rather more on language and the sender's past history than what is actually said. This result is consistent with what is found in Study 4, which also suggested that language had a significant effect on source judgements.

A further point of interest is the focus of some respondents on name and email address, which would provide some support for H1 and H3, more than could be seen from looking only at the mean source ratings discussed previously. Respondents who mentioned these referred specifically to the use of frivolous nicknames, and the use of free Internet providers. A common theme here was a derogatory view of those using free providers such as Hotmail, with some respondents claiming to ignore anything that came from these addresses. Anecdotal evidence would suggest that the use of such providers is associated with 'spammers' (either those who send the same message multiple times, or who send unsolicited junk email) and also 'trolls' (those who pretend to ask a naïve question in order to provoke flaming; Donath, 1999). It is not uncommon for users to warn others of the presence of a known troll, and for messages from that individual to be ignored, or perhaps even blocked by receivers' systems. It is a simple matter to obtain a new online identity through providers such as Hotmail, so that they are then able to circumvent restrictions on a prior account. Indeed, one respondent in this study referred to Hotmail users as people that 'come and go', which suggests an awareness of this sort of behaviour. This may provide some explanation for the dismissive attitude taken towards these users.

8.4.4 *Conclusions and Implications*

It would appear from these results that the use of language is a significant issue within CMC. In order for a message to be viewed as credible, it must be clearly and correctly written, irrespective of the ideas put forward. Furthermore, the sender needs to avoid frivolous nicknames and possibly even free Internet providers if they wish to be taken seriously.

However, even this may not be enough to gain credibility online, as it has been found that status can be associated with experience in an online forum, with inexperienced users ('newbies') enjoying fewer rights and sometimes receiving less respectful treatment than experienced users (Naper, 2001; Suler, 1996). Online users appear to be creating their own hierarchy, which could present new barriers to those wishing to join online communities.

8.5 **Summary Of Key Points**

- This chapter was concerned with a web-based survey on online source characteristics and credibility judgements. To an extent, it also provided a check on the ecological validity of Study 4 (Chapter 7).
- Not all source characteristics are considered to be equally important. Indeed, there appears to be no overall consensus on this, either within the specific characteristics listed, or within an open-ended question on this.
- From the ratings of the specific variables listed, the most important appeared to be 'own experience with topic', closely followed by 'previous communication with person' and 'language style'.
- Content analysis of the open-ended question showed the most frequent responses were related to language style.
- Overall, it appeared that respondents were more concerned with language and information about the sender, than the actual message itself.

- Messages appear to be judged initially on external factors, separate from the actual content. This would be consistent with research suggesting that a “different” set of status cues operates online, creating its own hierarchy.
- The following chapter draws together the results of all these studies, and discusses the research as a whole.

CHAPTER 9

OVERALL ANALYSIS OF STUDIES

9.1 Introduction

This research has looked at persuasion online, within the framework of influence as a process. In this regard, each of the studies carried out considered different aspects of the process and variables affecting persuasion. This chapter draws together the findings from each of these studies (Chapters 4-8), in order to provide an overview of how these studies fit together. In this way, a clearer picture can be obtained of how the influence process operates within the context of computer-based communication.

The structure of this chapter follows the division of quantitative and qualitative aspects taken in previous chapters, before drawing these together in an overall summary.

9.2 Quantitative Aspects

The main quantitative aspects of this research focused on the measurement of source variables, and on attitude change following message exposure. These are discussed in sections 9.2.1 and 9.2.2 following.

9.2.1 Source Variables

In looking at persuasion, the first factor in the process concerns the source of a potentially persuasive message. Variables such as the perceived reliability and honesty of the source can have considerable impact on whether the message is attended to or ignored, and on whether the arguments contained in it are accepted or rejected.

In order for a source to be persuasive, it must be perceived as being credible. As discussed in Chapter 3, various factors underlie credibility, in particular the source's expertness and trustworthiness. Briefly, expertness can be defined as the extent to which an individual is perceived as being a source of valid assertions. Factors such as age, whether they are in a position of leadership, and perceived similarity to the recipient are important. Trustworthiness is concerned with the perceived motives or intentions of the source, as someone seen as having a particular motive for a persuasion attempt is perceived as being less trustworthy.

It has already been noted (discussed in Chapter 3) that there is limited information available to online groups with which to judge the credibility of a source, as there are fewer channels for information. However, it should not therefore be assumed that all sources are considered to be equally valid, as credibility judgements are still made, focusing on whatever information is available. For CMC, there are two main sources of information, namely prior knowledge of group members, and information from the actual messages (such as name, content, language style). These should not be considered as being distinct and separate, instead information from one source can affect the importance attached to information obtained from the other. In effect, prior knowledge acts as the context or framework against which information in the message can be evaluated. This concept is discussed further in the following chapter.

The two sources of information mentioned above were considered within three of the studies in this research.

An important source of information within CMC comes from within the actual message. Study 4 (Chapter 7) focused on two main aspects of the information available, namely the language style and source gender (operationalised as the name). These particular factors were selected as they provide the most obvious and immediately available information from a message, apart from the actual content. It should be noted that these factors give not only direct information, but also implicit information associated with these variables. Language style, for example, can be seen as an indicator of level of education attained, or age, whereas the name gives indications of gender, which in turn can lead to implicit assumptions about the individual. In this instance, the apparent authority of the source, implied by language style, did have a significant effect on the way the source was perceived. However, the name (gender) had no significant effect, although it is probable that this is due to participants' lack of awareness of the different names (a point which arose in debriefing). This is an issue which will be discussed further in Chapter 10.

It would appear from this that source variables do have an impact on perceptions of credibility, at least within the context of a laboratory-based study. It is important to note that these variables are not limited to laboratory groups, as these factors were also of significance in an online survey (Chapter 8). Participants in online discussions explicitly use language factors as a means of judging the credibility of messages (and by inference, the source of these messages).

However, information from the message is not the only information available concerning the source, previous interactions can also be of significance in judging source credibility. This type of information was considered of importance by participants in Study 5.

Overall, it can be seen from these studies that even with the limited channels available, there is still sufficient information available both from within the message and from prior interactions for credibility judgements to be made.

9.2.2 *Attitude Change*

As attitude change is the aim of influence or persuasion attempts, the measurement of this forms a significant aspect of the quantitative approach in this research. This was evaluated both with participants taking part in the actual discussion process (Studies 1 and 2), and with simple exposure to a message (Study 4).

Overall, these studies do show some evidence of attitude change, although not in all conditions or groups. This is particularly evident where participants took an active part in discussions, and led to some unanticipated results.

Studies 1 and 2 looked at some of the variables which may have an impact on attitude change following participation in a discussion. The main focus here was on the different media in which the discussions took place, and also on the topics under discussion. In essence, these studies were concerned with whether the different media would affect the discussions such that subsequent attitude change would vary for the same topic, and also whether the topics chosen were of more significance than the format used.

The different topics selected showed some interesting results in these studies. For Study 1, the topics selected were those which elicited a variety of responses in a pilot survey (so that a variety of opinions would be available to encourage discussion). For Study 2, the pilot survey looked at interest ratings, so that a highly engaging (high interest) topic and an unengaging (low interest) topic could be selected. In this way, the amount of interest, which may be related to personal involvement, and hence the likelihood of central processing of the message content, could be evaluated to see whether this aspect was of significance.

It is interesting to note that under these criteria the Royal family was selected as a topic for both studies (the unengaging topic in Study 2). It would be anticipated, therefore, that similar results would be found in both studies for this topic. However, Study 1 showed significant attitude change here, whereas Study 2 did not. It is

possible that this is related to media coverage of the Royal family. Study 1 took place relatively soon after the death of Princess Diana, and so there may have been greater awareness of issues related to the Royal family, and possibly greater interest. Study 2 took place some time later, when the interest surrounding the death no longer existed, and so there may have been less interest in this topic. It is certainly the case that interest ratings taken prior to Study 2 indicated little interest in the Royal family, which would seem to suggest this may well be the case.

Further support for the importance of interest in the topic comes from Study 2, where the engaging topic showed significant attitude change. It would seem likely that greater interest in the topic meant that the discussion remained more focused on the issues, with participants generating more arguments, and paying more attention to the arguments put forward by others. It would appear that it is participating in the discussion rather than simply listening to the views of others that is important for the understanding and generating of arguments, as in Study 4, which simply required participants to read the message, and for which no significant attitude change was found. The topic here was also rated as highly interesting in a previous pilot study, and so lack of interest was not a factor here. Furthermore, all the groups showed attitude change in the direction of the message, even though the change was nonsignificant, which would suggest that the message was having some effect.

Although the topics under discussion in Studies 1 and 2 did have an effect on attitude change, the format in which discussions took place did not appear to have any significant effect. Neither Study 1 nor Study 2 showed any interaction between attitude change and media. In effect, the medium appears to be transparent, with no significant effect on attitude change. If attitude change alone was taken as the measure of whether CMC has an effect on influence processes, it would appear from this that it makes no significant difference which medium is used for discussion. However, this would be taking a purely quantitative approach, and considering only the end result of influence. It is important to note that there are other aspects to influence, and taking a more qualitative approach illustrates this, as discussed in the following section.

9.3 Qualitative Aspects

It is important to note that not all the potential effects of CMC on influence processes are quantitative in nature, and so this research also took a qualitative approach (also including quantitative measurement of subjective variables, e.g. tallies), considering both perceptions of the different media, and the impact of computer-based media on discussions.

9.3.1 Perceptions of the Media

Previous research has shown (for example, Daft & Lengel, 1984) that different media are not viewed as equally suitable for all communication tasks (discussed in Chapter 2). This research focused on one particular type of communication task, namely group discussions, with no requirement for resolution or decision making. As there are thousands of Usenet and other online groups whose sole purpose is to host discussions on topics of interest to their members, it would appear that computer conferencing is generally considered suitable for this type of communication.

In Studies 1 and 2 discussions took place in three different media, that is face-to-face (FTF), computer conferencing (CMC) and real-time chat (IRC), and so it is possible to compare how these were perceived by the participants. It is interesting to note that each format was viewed differently.

In particular, the conferencing groups found this method to be somewhat restrictive, and some found it frustrating. It was not uncommon for there to be a delay of hours or even days between a participant posting a message and receiving a response. This resulted in frequent delays and pauses in the discussions for these groups, which were very probably the main cause of the frustration experienced. However, it should be noted that this is only likely to be a significant problem within a laboratory setting, as the groups here tend to be small, whereas the majority of

online groups have large numbers of participants, which in turn helps the flow of conversation to be maintained.

In contrast, the IRC groups found their discussions to be very enjoyable. It was also seen as a medium in which it was possible to be very open, and participants felt able to say things they would not have felt able to say in a face-to-face discussion.

It is important to note that the *type* of computer-mediated discussion makes a considerable difference in how the medium is perceived. When discussing computer-mediated communication it is therefore important to note what type is under consideration. The differences in response time, for example, could affect feelings of distance or closeness to other group members. This in turn could affect how positively others are viewed, and indeed the discussion medium itself.

However, it is also possible that the frustration experienced by the CMC groups in particular could be at least partly as a result of participants inexperience with the medium, and also the limitations inherent in the experimental situation. Given the widespread popularity of these groups, it would seem that these problems are not an issue outside the laboratory. As this aspect was not directly addressed within this research, this question cannot be fully answered here.

9.3.2 Effects of Media on Discussions

An important aspect of CMC (conferencing or chat) is the effect it has on the actual discussions that take place in this format. As computer-based discussions are automatically recorded, it is possible to analyse the discussions, both in terms of the content (what is said) and the language style (how it is said). As Usenet groups also maintain an archive of messages posted, it is possible to analyse these in the same way, to provide a basis for comparison with the laboratory based groups. A full discussion of the results is given in Chapter 6.

The analysis showed interesting difference between content and language style. Overall, the laboratory and field (Usenet) groups tended to be relatively similar in terms of content, with the majority of messages being task-related (that is to say, focused on the relevant topic for that particular group). However, it should be noted that there was also a trend within the IRC groups towards more social messages, although a greater number were still task-related. This may well be related to participants' perceptions of this format as enjoyable and open, which perhaps allowed them to be somewhat more personal. It is possible that outside the experimental situation, without the constraints and implicit demands to focus on the task, personal/social messages would predominate. The results here, however, suggest that it is possible to extrapolate from laboratory to field with some confidence, in terms of the content of discussions.

Greater differences were found when looking at language style. The CMC and Usenet groups appeared rather different in this respect, with the CMC groups tending to be formal in tone, whereas the Usenet groups were informal. In this regard, the Usenet groups are similar to the IRC groups, which also tended to be informal.

The relative formality found in the CMC groups may be a reflection of participants' lack of familiarity with the technology, and the somewhat stilted conversation within these groups. The IRC groups were also unfamiliar on the whole with the technology, but the rapid response time meant that the discussion flowed more easily, which might in turn encourage a more casual mode of discussion. It was also the case that the IRC groups actually exchanged far more messages in a short time than was possible for the CMC groups. It may be that given a longer time for interaction, the CMC groups would have developed a more casual and informal mode of interaction. Certainly, the Usenet groups had been in existence for some time, and participants here could be expected to have greater familiarity with the technology, which might provide a partial explanation for the greater informality.

It would appear from these results that whether laboratory based CMC is comparable to real world groups is dependent on the particular aspect under

consideration. The content of discussions appears similar for both laboratory and field groups, however the laboratory-based conferencing groups are considerably different from field groups in terms of language style.

9.4 Conclusions

Overall these studies illustrate the different aspects of CMC and the effects this medium has on the influence process. By looking at both quantitative and qualitative aspects it is possible to consider how the use of computers for discussion affects both the end process of influence (attitude change), and the stages preceding this (such as perceptions of the source of information, and the actual discussions).

From a purely quantitative standpoint it would appear that CMC has no significant affect on attitude change, instead the medium is transparent with respect to this. Given this, it could be argued that the medium in which a discussion takes place is irrelevant with regard to influence and attitude change.

However, when a qualitative view is taken, it can be seen that the computer medium does have an effect on the actual discussions, which could have implications for the way potentially persuasive messages are viewed. The different types of computer format have an impact on the language used in discussions, and it has been demonstrated here that language style does have an effect on how a source is perceived. Although this did not appear to be having a significant effect within these experimental groups, it may well be that these effects can only be demonstrated in long term groups, rather than within short-term zero-history groups such as these. It should also be noted that the different CMC formats also have an impact on how the medium is perceived, as the different types (conferencing or chat) are not seen as being equal. Finally, as with many studies, this research cannot rule out the possibility that a shift in time, place, topic, or method would produce very different results –

within the variance of the present studies, however, there was no particular evidence of the results' lack of generality.

An important point to note here is that in extrapolating from laboratory based studies, the actual format of CMC needs to be taken into consideration. The way in which participants interact within a laboratory setting, and their perceptions of the medium, are different depending on the type of CMC used, and may therefore not be a valid and reliable mode of comparison with field groups in all aspects.

The following chapter discusses the implications of this research in more depth, and presents a theoretical framework bringing these results together.

9.5 Summary of Key Points

- This chapter draws together the results of all the studies in this research, considering both quantitative and qualitative aspects.
- The main quantitative aspects here were source ratings, and attitude change.
- Two main sources of information were considered, namely information from within the message (such as name, language style, content), and prior knowledge of group members.
- Even with the limited channels available, there is still sufficient information for credibility judgements to be made, and these do appear to have an effect on recipients.
- There was some evidence of attitude change found, but not in all conditions or groups.
- From a purely quantitative standpoint, the medium appears transparent, and does not seem to have any real effect on the influence process.
- The qualitative approach shows that differences arise both in how the medium is viewed, and on the discussions themselves.

- Computer-mediated communication cannot be viewed as a unitary concept. Different types of computer-based discussion have different effects, and this needs to be taken into account.
- In the following chapter, the implications of this research are discussed in more depth, and an alternative theoretical approach is suggested.

CHAPTER 10

CONCLUSIONS AND IMPLICATIONS

10.1 Introduction

The previous chapter summarised the results from this research, and gave an overall review of the findings within the framework of the message learning approach.

In this chapter, the results are considered with reference to the three main theoretical approaches to computer-mediated communication (CMC) discussed in Chapter 2. An alternative (fourth) approach, based on McGuire's (1985) Reception Yielding Model is also discussed.

10.2 Previous Theoretical Approaches

A variety of theoretical approaches to CMC were discussed in Chapter 2, and three of particular utility were focused on, namely the reduced social cues perspective, social information processing theory, and the SIDE model. Each of these is discussed here, with reference to the results of this research.

10.2.1 Reduced Social Cues Perspective

Briefly, the cues-filtered-out approach (Kiesler & Sproull, 1992) suggests that there is a reduction in the contextual, visual and aural cues available, which then reduces people's ability to adjust the target, tone and verbal content of

communication. This is expected to lead to on-line communication becoming more uninhibited and nonconforming compared to face-to-face communication.

There is evidence to suggest that social cues are reduced in CMC, but this approach has been repeatedly challenged in the literature, and it has been demonstrated that rather than being impersonal, CMC can be very personal in nature. Within this research, one type of on-line communication, Internet Relay Chat (IRC), tended to be extremely informal, and discussions took a rather more playful tone.

There is also an assumption within this approach that the remaining cues, available (such as those provided within the text of communications) are less informative, and provide insufficient information regarding the status of others. While it is certainly true that there is limited information available on-line, as the number of channels is restricted, the studies here suggest that the information still available is processed to a considerable extent, possibly more than would be the case with face-to-face communication. Rather than attention being focused mainly on the ideas being presented, as has been suggested, it would appear that the language style of a message provides considerable information concerning the sender. As Chapter 7 illustrates, language style is explicitly used on-line as a means of judging the credibility of a message sender, and can be considered separately from the actual message content.

The results here follow the general trend within the literature of challenging this approach, and so an alternative explanation must be sought.

10.2.2 Social Information Processing Model

The social information processing model (Walther, 1992) argues that the loss of visual cues is a disadvantage to be overcome over time, and there is evidence to suggest that linguistic and typographical cues develop to aid this. These cues need to be learned, and this takes time in itself. This means that the amount of social information transmitted via CMC will converge with that of FTF over time.

However, the key theoretical predictions of this model were refuted by Walther (1995), with the finding that CMC can be significantly more social than FTF, and that developments over time were not in the predicted direction in most cases.

Walther (1996) has developed the model further, and proposed a hyperpersonal communication model, where CMC surpasses the level of affection and emotion in parallel FTF interactions, as a result of the ability for selective self-presentation. However, it is not entirely clear under what circumstances CMC will become hyperpersonal, and there is still a focus here on what is lost in CMC.

10.2.3 Social Identity Model of Deindividuation Effects (SIDE)

The SIDE model was developed from social identity theory, and suggests that the restrictions of CMC may actually privilege more social levels of self-definition. The visual anonymity of CMC means that the impact of group influence and social norms are strengthened, to the extent that these norms are salient. However, the main limitation here is the focus on visual anonymity, which means that this limits SIDE to specific contexts.

10.3 An Alternative Approach

Although the theories discussed in the previous section have been useful in directing research, they do not provide a full explanation of the results in these studies, and have been found to be of restricted usefulness in prior research. An alternative model is proposed here, based (in spirit) on McGuire's (1985) Reception Yielding Model of persuasion, which takes a more information processing based approach.

McGuire's model suggests that there are a series of stages which have to be passed for a persuasive message to be attended to and accepted. In a similar fashion, it can be argued that a CMC message has several stages in its reading which need to be passed in order for the message to be read and attended to (shown in Figure 10.1).

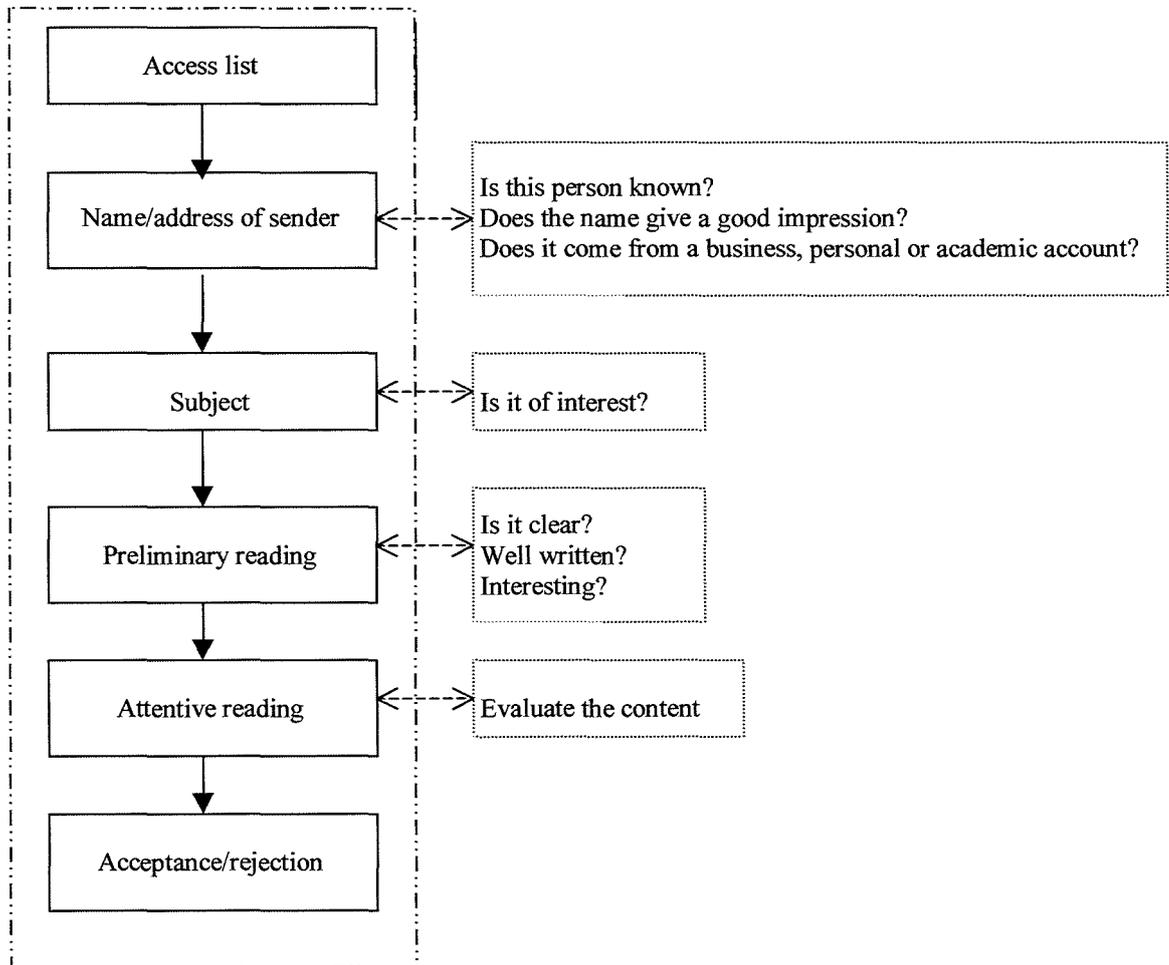


Figure 10.1 Proposed Model of CMC Use

As can be seen from Figure 10.1, it is suggested that the reading of a CMC message follows a set sequence of stages (shown in the series of boxes on the left). The boxes on the right show the type of questions that would be perceived as relevant at each stage. Even if the boundaries between stages are sometimes “fuzzy” and some of the stages flash past rather quickly, people may still act “as if” they go through these sequential stages in processing information. It should also be noted that the

opportunity to accept or reject the message without any further processing exists at each stage within the model, not just at the final stage shown.

Within CMC (specifically asynchronous CMC, such as Usenet) the structure of message lists is such that it is possible to filter out the messages of interest to the recipient. There is no guarantee that a specific message will be read at all, and if it is read, it still may not be attended to. It is possible for the recipient to reject the message at any stage before fully reading and attending to the content. At each stage, different information would be particularly salient.

In order to present a clear picture of how this model applies to the processing of CMC messages, each stage is discussed in the following sections.

10.3.1 Stage 1 – Access list

Conference groups, such as those on Usenet, are organised around topics of interest, and it is common for participants to belong to several such groups. Before any messages can be read, it is necessary to access the list, which may involve several steps such as logging onto a computer system, accessing the appropriate program, and connecting to the selected list, and this would be required at the beginning of any computer session. It should be noted that this stage is only truly applicable for the first message read within a conferencing session, as for subsequent messages, the process would effectively begin at the next step.

This is an important stage, even though it only applies once per ‘session’, as any technical difficulties experienced here may have an impact on the perception of messages received, or on perceptions of the medium itself. In Studies 1 and 2 (Chapters 4 and 5) some participants did experience difficulties with the conferencing program (PsiMail), and described the medium as frustrating. Furthermore, they appeared to find it difficult to maintain a discussion in this format, and this was reflected in greater formality in their language (Chapter 6).

In an experimental situation, this stage may not hold the same level of importance or significance, as the same opportunities for leaving the computer session may not exist. In Studies 1 and 2, for example, one requirement of participation was the posting of a minimum number of messages, which meant that there was a requirement to persist with the computer in spite of technical difficulties. In other research, this stage may be bypassed entirely, and the processing begun at a later stage. This was effectively the case in Study 4 (Chapter 7), in which the message was presented to participants directly on the screen, without any requirement to access the system themselves.

10.3.2 Stage 2 – Name/address of sender

Once the list has been accessed, the first part of the message to be seen is generally the name (and email address) of the sender. This is true of the majority of email and conferencing systems, and this was reflected in the design of the PsiMail program.

The name and email address can supply considerable information about the sender, even when they are unknown to the recipient. If the message comes from a known source, the name acts as a reminder of past experiences with this individual. However, if they are unknown, the name can provide implicit information such as gender or age (for example, if they use a humorous name such as ‘Bubbles’, they are likely to be younger than someone with a more serious name), and the address can give information of their affiliation, particularly if it is a business or academic address. This information is certainly considered as important in online groups, as demonstrated in Chapter 8.

The contrast between laboratory and field based studies can be clearly seen at this stage, as although the name is seen as important online (Chapter 8), in a laboratory situation there may be little awareness of source name (Chapter 7). In an

experimental situation, the name of the source may not be perceived as being salient, as attention may be focused on other aspects, particularly the message content.

10.3.3 Stage 3 – Subject

This refers to the subject line or 'header' which appears at the beginning of a message, and provides a brief suggestion of what the message content will be. It gives an opportunity to decide whether the message is likely to be of interest to the recipient, or whether it can simply be filtered out. In Study 5 (Chapter 8), the subject was considered to be an important factor in judging the credibility of a message, which in turn leads to a decision on whether it is worth further consideration.

In an experimental situation, there is generally a requirement (whether implicit or explicit) for all messages to be read, and so the subject line becomes of less relevance.

10.3.4 Preliminary reading

This stage involves consideration of the message itself, but initially there may be only a cursory reading, enough to allow a judgement to be made on whether it is clear, easy to understand, and interesting. The nature of CMC is such that it is perceived as a fast, convenient medium, and so there be a lack of willingness to expend effort in interpreting badly written or confusing messages.

Aspects of the message such as language style and clarity are viewed as being very important online (Chapter 8), and have a real impact on how the source of the message is perceived (Chapter 7). If a message is unclear, or is badly written, it may therefore be rejected without further consideration of the actual content.

10.3.5 Stage 5 – Attentive reading

It would appear that the actual content of the message is attended to only if other aspects, such as language, are acceptable. Although the content is considered important in judging a message, it does not appear to be as significant as these other external factors (Chapter 8). It could therefore be argued that a full evaluation of the message will only take place once all other aspects of the message have been considered, even if only briefly.

10.3.6 Stage 6 – Acceptance/Rejection

This is given as the final stage of the model, although the message may actually be rejected at any point in the process prior to this. If the message is fully processed, through all stages of the model, it is the actual content that is considered and accepted or rejected at this point.

10.3.7 General Comments

To some extent, each stage that is passed mediates the following stages, with the relevant information at a prior stage weighting the information received at the next, thereby either increasing or reducing the probability of continuing with the message.

Within an experimental situation (and presumably in some non-experimental uses of CMC, such as those involving a work group that must share knowledge in order to complete a task), it could be argued that CMC does not operate in the same way. There is a requirement (implicit or explicit) for messages presented to be read, and to some degree attended to. The same opportunities for early rejection are severely reduced, or removed entirely. The salience of the information provided is therefore weighted more by the researcher than by the receiver's own experience and

perceptions. This can be seen within this research, as in the on-line survey (Chapter 8) where the name and address of the sender was perceived as being extremely useful in gaining an overall impression of their credibility, whereas when source characteristics were examined directly (Chapter 7), the name of the source was not noted by the majority of the participants.

It could therefore be argued that the information presented in an experimental situation is not always that looked for when there is an element of choice. This change in the way CMC is used within a lab-based study, compared to actual online groups, may go some way to explaining previous inconsistencies in results found by different researchers. In each study, different information may have been given the greatest weighting, hence changing the focus of attention.

10.4 Further Questions

Although the model proposed here draws together the results of this research, further study is still required, in order to clarify the extent to which this model has explanatory power, rather than simply being descriptive.

A key question is whether this model is an accurate representation of actual CMC use. It could, for example, be argued that instead of following the particular route this sets out, individuals may develop their own sets of heuristics or cognitive shortcuts for dealing with messages. Further research is required to directly test this model, looking at the process through each of the stages presented here, and also investigating the effect of entering the sequence at different stages.

Research could also look at the application of this model to prior studies, and consider the extent to which it is possible to draw together apparently contradictory results to form a more coherent presentation of the effects of CMC use.

There are further issues relating to the use of CMC which are not directly represented in the model proposed, and further research is required to look specifically at these.

A key question is that of the extent to which each on-line interaction (for example, reading a mailing list, or joining an IRC group) is focused on the actual technology and the computer rather than on the communication partners. In other words, how much attention is focused on the computer as a participant, rather than as a mediator?

The potentially intrusive nature of technology is an issue to differing degrees depending on the type of on-line communication being considered. For IRC, interaction directly with the computer is limited, as once the group has been joined, the majority of an individual's attention can be focused on the messages being presented, and the rapidity of feedback (minimal delay between sending and receiving messages) encourages this. However, CMC groups (such as Usenet, or the groups within this research) are required to deal more directly with the technology (accessing the computer, and then accessing the group) each and every time they wish to either send a message, or look at messages received. As there is no assurance that this effort will be 'rewarded' by receiving new messages, it can be the case that the majority or entirety of the interaction is with the computer, without any sense of others being involved.

It would appear that the greater the percentage of time per interaction focused on the technology, the greater the sense of frustration, and also the greater the perceived distance between sender and receiver, and this then results in a more formal and stilted discussion. However, where there is a higher percentage of time for the actual discussion, the entire interaction is viewed more positively, and takes on a more informal, relaxed aspect. In terms of the model proposed, IRC groups spend less time on the early stages of Figure 10.1, allowing greater attention to be paid to the actual messages. In this regard, they also have a higher return for effort compared to CMC groups, in that they receive a greater number of messages within a similar time period.

These are questions which need to be looked at directly within future research, in order to clarify whether the different types of technology do have an impact in this way.

10.5 Conclusions

To date, there has not been a completely clear outline of the effects of using computer-mediated communication for a variety of tasks. The results found in previous research have demonstrated that the outcome of CMC depends not only the task, but on the individuals and groups using. Early research labelled CMC as an information poor, impersonal medium, which nevertheless is widely used for social purposes.

The results obtained from this present research suggest that an explanation for apparently contradictory results may be found in looking at the way in which CMC is used outside the laboratory, and the nature of the restrictions necessarily imposed in a laboratory setting. This has given rise to the model proposed here, which suggests that the information participants attend and respond to, and hence the outcome, depends largely on where in the full CMC process the task is placed. If there is an awareness of the differing salience of information at different points, and this is taken into consideration, it may well be the case that apparently contradictory results can be resolved into a coherent picture.

10.6 Summary of Key Points

- This chapter discussed the results from this research with reference to three main theoretical approaches to CMC.
- An alternative approach was proposed, based on McGuire's (1985) Reception Yielding Model of persuasion.
- This stage model of CMC use suggests that a computer-based message has several stages in its processing which need to be passed in order for the message to be read and attended to.
- Each stage passed mediates the following stages, with relevant information at each stage weighting the information at the next stage, thereby either increasing or reducing the probability of continuing with the message.
- Information presented in an experimental situation is not always that looked for when there is an element of choice. In everyday life, it is possible to ignore information, even if it is about a popular topic.
- This model may provide an explanation for differing results found in previous research. In each study, different information may have been given the greatest weighting, thereby changing the focus of attention.
- If there is an awareness of the differing salience of information at different points, and this is taken into consideration, it may well be the case that apparently contradictory results can be resolved into a coherent picture.

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APPENDIX A

QUESTIONNAIRES FROM STUDY 1

- ◆ Attitude questionnaire
- ◆ General Survey
- ◆ Discussion ratings questionnaire

OPINION SURVEY

Age:	Course:
Sex: M/F	Code Number:

Please read each the following statements, and circle the number which most closely corresponds to your opinion, using the following scale:

Strongly Agree	Agree	Agree Slightly	Don't Know	Disagree Slightly	Disagree	Strongly Disagree
7	6	5	4	3	2	1

Do not spend long thinking about each answer, simply give your first response. There are no right or wrong answers, it is your opinion which is important.

All answers are strictly confidential.

1.	Marriage is outdated and unnecessary	7	6	5	4	3	2	1
2.	The armed forces are underfunded, and their budget should be increased	7	6	5	4	3	2	1
3.	It would be better for this country to become a republic	7	6	5	4	3	2	1
4.	I would always vote in an election	7	6	5	4	3	2	1
5.	There should be unrestricted access to information on the Internet	7	6	5	4	3	2	1
6.	It is a good idea to live with someone before getting married	7	6	5	4	3	2	1
7.	It is important to vote so my views can be represented	7	6	5	4	3	2	1
8.	The government should provide free education for all	7	6	5	4	3	2	1
9.	The Internet has an important role to play in education	7	6	5	4	3	2	1
10.	The most important role for the royal family is as a tourist attraction	7	6	5	4	3	2	1
11.	Marriage is the ultimate way of expressing love for someone	7	6	5	4	3	2	1
12.	The Internet is just another form of entertainment, like television or radio	7	6	5	4	3	2	1
13.	There is no real difference between the current political parties	7	6	5	4	3	2	1

Strongly Agree	Agree	Agree Slightly	Don't Know	Disagree Slightly	Disagree	Strongly Disagree
7	6	5	4	3	2	1

14.	Some form of graduate tax is the best way to fund higher education	7	6	5	4	3	2	1
15.	It is important to have nuclear weapons as a deterrent	7	6	5	4	3	2	1
16.	There is no longer any need for a royal family	7	6	5	4	3	2	1
17.	Top up fees are a necessary step in funding higher education	7	6	5	4	3	2	1
18.	Conventional armed forces are sufficient for defence	7	6	5	4	3	2	1
19.	There should be no censorship on the Internet	7	6	5	4	3	2	1
20.	Voting is a waste of time	7	6	5	4	3	2	1
21.	I would like to get married once I find the right person	7	6	5	4	3	2	1
22.	Students should be responsible for paying for their own education	7	6	5	4	3	2	1
23.	The royal family has no real part to play in the modern world	7	6	5	4	3	2	1
24.	The only reason for getting married is to have children	7	6	5	4	3	2	1
25.	The present system of government does not truly represent the views of the people	7	6	5	4	3	2	1
26.	All nuclear weapons should be destroyed	7	6	5	4	3	2	1
27.	Further cuts in funding will mean that higher education will only be available to the elite	7	6	5	4	3	2	1
28.	The Internet should be policed, to stop offensive material being spread	7	6	5	4	3	2	1
29.	The royal family is beneficial to the country's economy	7	6	5	4	3	2	1
30.	Less money should be spent on defence	7	6	5	4	3	2	1

Thank you for your assistance.

GENERAL SURVEY

Please fill in your Code No. _____, and complete the following:

DIRECTIONS: Please answer all of the questions as follows:

=====

1. Strongly DISagree
2. DISagree
3. Slightly DISagree
4. (absolutely uncertain)
5. Slightly agree
6. Agree
7. Strongly agree

=====

Give the answer which best represents your immediate reaction to each statement. If you have reservations about some part of a statement, give the answer which most clearly represents your general feeling.

- | | |
|--|---|
| <p>___ 1. I enjoy being in a crowd just to be with people.</p> <p>___ 2. Most people that you meet are friendly and obliging, more disposed to aid you than to refuse aid.</p> <p>___ 3. Our modern industrial and scientific achievements are signs of a greater degree of success than that attained by any previous society.</p> <p>___ 4. I brood a great deal.</p> <p>___ 5. If I encounter a group of people whom I have met previously, I begin a conversation with them.</p> <p>___ 6. People will be honest with you as long as you are honest with them.</p> <p>___ 7. Trust others to the limit, and they will trust you to the limit.</p> <p>___ 8. The most important function for education is preparation for practical achievement and financial reward.</p> <p>___ 9. If you have faith in your friends, they will seldom disappoint you.</p> <p>___ 10. I wish I could be as happy as others seem to be.</p> <p>___ 11. I very seldom have spells of the blues [melancholy].</p> <p>___ 12. At times I think I am no good at all.</p> <p>___ 13. Most people are generous in their judgment of your actions and inclined to give you the benefit of a doubt.</p> | <p>___ 14. Young people sometimes get rebellious ideas, but as they grow up they ought to get over them and settle down.</p> <p>___ 15. Believe that people will keep their promise, and they will keep it.</p> <p>___ 16. There is hardly anything lower than a person who does not feel a great love, gratitude and respect for his/her parents.</p> <p>___ 17. I do not avoid large gatherings of people.</p> <p>___ 18. A well-raised child is one who doesn't have to be told twice to do something.</p> <p>___ 19. Only once in a great while, if at all, does one run into a dishonest and deceitful person.</p> <p>___ 20. I like to serve as a member of a committee in carrying out some activity or project.</p> <p>___ 21. I worry quite a bit over possible misfortunes.</p> <p>___ 22. I prefer to visit with one person rather than with a group of people.</p> <p>___ 23. Patriotism and loyalty are the first and the most important requirements of a good citizen.</p> <p>___ 24. I prefer to stay at home rather than attend social affairs.</p> <p>___ 25. I feel anxiety about something or someone almost all the time.</p> <p>___ 26. What youth needs most is strict discipline, rugged determination and the will to work and fight for family and country.</p> <p>___ 27. I work better when I am not being observed by others.</p> <p>___ 28. Obedience and respect for authority are the most important virtues children should learn.</p> <p>___ 29. I sometimes feel overwhelmed with anxiety.</p> <p>___ 30. I am introverted, serious, shy, introspective.</p> |
|--|---|

Age: Sex: M/F Code Number:

Please rate your group's discussion on the royal family

Very interesting			Neither			Very boring
1	2	3	4	5	6	7

Please rate your group's discussion on voting and elections

Very interesting			Neither			Very boring
1	2	3	4	5	6	7

In the computer-based discussion, do you feel you would have been able to put your point of view across more successfully face-to-face?

Yes, definitely			Uncertain			No, definitely not
1	2	3	4	5	6	7

Please give your overall impressions of taking part in this study, and any comments you may have

APPENDIX B

QUESTIONNAIRES FROM STUDY 2

- ◆ Attitude questionnaire
- ◆ Discussion ratings questionnaire
- ◆ Group member ratings questionnaire

Age:	Course:
Sex: M/F	Code Number:

Please read the following statements, and circle the number which most closely corresponds to your opinion, using the following scale:

Strongly Disagree	Disagree	Disagree Slightly	Don't Know	Agree Slightly	Agree	Strongly Agree
1	2	3	4	5	6	7

There are no right or wrong answers, it is your opinion which is important.

All answers are strictly confidential.

1. Public transport is better for the environment than cars _____
2. Tuition fees should be completely scrapped _____
3. The NUS does not truly represent the interests of students _____
4. It would be better for this country to become a republic _____
5. National campaigns by the NUS can make a difference _____
6. It is important to buy only 'environmentally friendly' products, whatever they cost _____
7. Some form of graduate tax is the best way to fund higher education _____
8. There should be unrestricted access to the Internet _____
9. Tuition fees will make it harder for many to go to university _____
10. The most important role for the royal family is as a tourist attraction _____
11. Recycling is an important part of protecting the environment _____
12. There is no longer any need for a royal family _____
13. The government should provide free education for all _____
14. The Internet has an important role to play in education _____
15. The NUS should not be connected to any particular political party _____
16. Top-up fees are a necessary step in funding higher education _____

17. There is little that individuals can do to help protect the environment _____
18. The Internet is just another form of entertainment, like television or radio _____
19. The royal family has no real part to play in the modern world _____
20. Driving a car does not cause much pollution _____
21. Standing for the NUS would be a good introduction to politics _____
22. Students should be responsible for paying for their own education _____
23. There should be no censorship on the Internet _____
24. The royal family is beneficial to the country's economy _____
25. NUS national campaigns do not achieve anything _____
26. The government should do more to protect the environment _____
27. The royal family does a lot of good work for charity _____
28. Tuition fees should be related to income _____
29. The Internet should be policed, to stop offensive material being spread _____
30. Student politics are a waste of time _____
31. The Internet is a good source of information _____
32. The royal family does not need to be supported by public money _____
33. So-called 'environmentally friendly' products are not worth paying extra for _____
34. Tuition fees should only be paid by those who can afford them _____
35. The press should not intrude on the private lives of the royal family _____
36. There is no point in belonging to the NUS _____
37. Recycling does not make a difference _____
38. The majority of Internet sites are pornographic _____
39. Students should become more involved in political issues _____
40. Information obtained on the Internet is not reliable _____

Age: Sex: M/F Code Number:

Please rate your group's discussion on the royal family

Very interesting				Neither				Very boring
1	2	3	4	5	6	7		

Please rate your group's discussion on tuition fees

Very interesting				Neither				Very boring
1	2	3	4	5	6	7		

In the computer-based discussion, do you feel you would have been able to put your point of view across more successfully face-to-face? (If both discussions were computer-based, you may wish to rate this separately – please indicate where you have done this)

Yes, definitely				Uncertain				No, definitely not
1	2	3	4	5	6	7		

Please give your overall impressions of taking part in this study, and any comments you may have

How many of the other group members did you know before taking part in the study? (circle number) 0 1 2 3 4

Did you like the other group members? (tick one box)

- I liked all of them
- I liked some of them
- I didn't like any of them
- I didn't particularly like or dislike them

I could identify with the other group members (tick one box)

- Yes, all of them
- Yes, some of them
- No, not at all

I feel that this was an important task (circle one number)

Strongly Agree				Don't know				Strongly Disagree
1	2	3	4	5	6	7		

I valued the opportunity to take part (circle one number)

Strongly Agree				Don't know				Strongly Disagree
1	2	3	4	5	6	7		

This was a waste of my time (circle one number)

Strongly Agree				Don't know				Strongly Disagree
1	2	3	4	5	6	7		

I thought this was foolish (circle one number)

Strongly Agree				Don't know				Strongly Disagree
1	2	3	4	5	6	7		

Please give any comments overleaf

APPENDIX C

QUESTIONNAIRES AND TEXT FROM STUDY 4

- ◆ High authority text
- ◆ Low authority text
- ◆ Impressions questionnaire
- ◆ Attitude questionnaire

HIGH AUTHORITY TEXT

Recycling is not a real benefit to the environment, because the energy consumption required by the recycling process means it is an inefficient use of resources. This is not helped by the fact that recycling points are not usually located within easy distance of residential areas, and so a car is required to take items to be recycled, thereby adding to congestion and to air pollution.

However, having said that, a car using unleaded fuel can actually be better for the environment than taking the bus, particularly if you take part in a car pool. It is then possible to plan your journey efficiently, avoiding the long indirect route of a bus, thus saving resources, and reducing pollution. Added to this, many buses use diesel fuels, which add considerably to air pollution, and so the benefits to the environment are questionable.

Many so-called 'environmentally friendly' products are overly expensive, and not worth the money. The label is sometimes more of a designer logo than a true indicator that the product really is good for the environment. Also, the packaging on these products cannot always be recycled, and so has to be thrown away, so any potential benefits are reduced.

LOW AUTHORITY TEXT

I think reusing things, (is recycling the right word?) is a waste of time, because, I mean, it probably takes a lot of energy, electricity or whatever, to recycle stuff. And that seems kind of wasteful to me. You have to get the stuff to a recycling place, and these places are usually miles away, so that would mean driving. But if we're all supposed to avoid using our cars, how are we supposed to recycle? If you do use a car, that's probably not environmentally friendly, because of fumes or whatever, so it kind of takes away the good of doing the whole recycling thing anyway.

I suppose, though, that if your car was using unleaded fuel, or some sort of 'green' fuel, then that would be better, because it wouldn't be causing pollution. I read somewhere that if you share a car, and use unleaded or whatever, then that would be better than maybe going by bus. I mean, you go directly to the place you want, rather than the long way round, so you're using less fuel anyway. Buses use diesel anyway, I believe, so that would mean more pollution.

I don't think it's worth buying environmentally friendly stuff, because they're expensive. The label probably doesn't mean anything anyway, you're just paying for the name, and there's still all the packaging which gets thrown away, and that's the bit that's bad, isn't it?

What are your overall impressions of this person?

How good an understanding of the points raised does this person have?

Poor							Good
1	2	3	4	5	6	7	

Do you think this person gave a fair and honest representation of the issues, or was this rather one-sided?

Completely Fair							Completely Unfair
1	2	3	4	5	6	7	

Do you think this person is similar to you?

Very like me							Not at all like me
1	2	3	4	5	6	7	

Do you think you would like this person, if you were to meet?

Yes, definitely							No, definitely not
1	2	3	4	5	6	7	

Do you think this person is likely to be a leader in group situations?

Yes, definitely							No, definitely not
1	2	3	4	5	6	7	

Age:	Course:
Sex: M/F	Code Number:

Please read the following statements, and circle the number which most closely corresponds to your opinion, using the following scale:

Strongly Disagree	Disagree	Disagree Slightly	Don't Know	Agree Slightly	Agree	Strongly Agree
1	2	3	4	5	6	7

There are no right or wrong answers, it is your opinion which is important.

All answers are strictly confidential.

1. Public transport is better for the environment than cars _____
2. Tuition fees should be completely scrapped _____
3. The NUS does not truly represent the interests of students _____
4. It would be better for this country to become a republic _____
5. National campaigns by the NUS can make a difference _____
6. It is important to buy only 'environmentally friendly' products, whatever they cost _____
7. Some form of graduate tax is the best way to fund higher education _____
8. There should be unrestricted access to the Internet _____
9. Tuition fees will make it harder for many to go to university _____
10. The most important role for the royal family is as a tourist attraction _____
11. Recycling is an important part of protecting the environment _____
12. There is no longer any need for a royal family _____
13. The government should provide free education for all _____
14. The Internet has an important role to play in education _____
15. The NUS should not be connected to any particular political party _____
16. Top-up fees are a necessary step in funding higher education _____

17. There is little that individuals can do to help protect the environment _____
18. The Internet is just another form of entertainment, like television or radio _____
19. The royal family has no real part to play in the modern world _____
20. Driving a car does not cause much pollution _____
21. Standing for the NUS would be a good introduction to politics _____
22. Students should be responsible for paying for their own education _____
23. There should be no censorship on the Internet _____
24. The royal family is beneficial to the country's economy _____
25. NUS national campaigns do not achieve anything _____
26. The government should do more to protect the environment _____
27. The royal family does a lot of good work for charity _____
28. Tuition fees should be related to income _____
29. The Internet should be policed, to stop offensive material being spread _____
30. Student politics are a waste of time _____
31. The Internet is a good source of information _____
32. The royal family does not need to be supported by public money _____
33. So-called 'environmentally friendly' products are not worth paying extra for _____
34. Tuition fees should only be paid by those who can afford them _____
35. The press should not intrude on the private lives of the royal family _____
36. There is no point in belonging to the NUS _____
37. Recycling does not make a difference _____
38. The majority of Internet sites are pornographic _____
39. Students should become more involved in political issues _____
40. Information obtained on the Internet is not reliable _____

APPENDIX D

QUESTIONNAIRE FROM STUDY 5

SURVEY ON ONLINE IMPRESSION FORMATION

Q1. How frequently do you read/take part in online discussion groups?

- Daily
- More than twice a week
- Weekly
- Monthly
- Occasionally
- Other (Please specify) _____

Note: The following questions relate to messages where you have little or no prior knowledge of the sender.

Q2. What factors do you consider when deciding on the credibility of a message?

Q3. Please rate the following for how important you feel they are, when judging a message:

Please use a scale of 1 - 7, where: 1 = not at all important, 7 = extremely important

Name

1 2 3 4 5 6 7

Email address (i.e. whether academic, corporate or personal)

1 2 3 4 5 6 7

Gender of person

1 2 3 4 5 6 7

Previous communication with the person

1 2 3 4 5 6 7

Validation by others

1 2 3 4 5 6 7

Own experience with topic

1 2 3 4 5 6 7

Language style

1 2 3 4 5 6 7

Spelling

1 2 3 4 5 6 7

Note: These questions relate to information about yourself

Q4. Age:

- Under 18
- 18-25
- 26-35
- 36-45
- 46-55
- 56-65
- 65+

Q5. Are you

- Male
- Female

Q6. Highest level of education

- Secondary/high school
- Sixth Form college
- University
- Higher degree

Q7. Current occupation

When you have completed all questions, please click this button:

Thank You!

Thank you for completing this survey, your help is greatly appreciated. Please tell your friends about this site!

Results will be posted on this site once the survey is complete

If you have any questions or comments, please contact Caroline Ilsley at psp01cri@gold.ac.uk
