

**BECOMING A SECONDARY SCIENCE TEACHER:**

**An exploration of key personal, professional & situated experiences &  
how these shape science teacher identities: a multiple case study**

**Jaswinder Jutla**

**Thesis Submission for Doctor of Education**

**Newcastle University**

**School of Education Communication and Language Sciences**

**November 2016**

## **ABSTRACT**

This holistic study theorises student teachers (STs') personal, professional and situated experiences as identity formation and embraces Wenger's (1998) social theory of learning framework. The study offers fruitful insights into the intricate scenarios that challenge or support STs' identity development as secondary science teachers. Three ST's partook, two PGCE ST's and one GTP ST which formed each case study. They were recruited using a sample of convenience. Data collection methods include semi-structured interviews, three questionnaires, diamond ranking and documentary evidence. The methodology of analysis is embedded within an interpretive paradigm. Thematic analysis is used in addition to an integrated analytical framework. This includes aspects of Day and Kington's (2008) identity model intertwined with Valsiner's (1997) two basic extended zone theory concepts comprised of the Zone of Free Movement (ZFM) and Zone of Promoted Action (ZPA). The three ST's professional and situated experiences are mapped on to these models to identify factors that exercise the most/least dominance. This revealed the relative stability/instability depicted within each identity dimension including the personal dimension of identity. This provided an overall snapshot of the identity scenario each ST experienced whilst training and highlighted areas of training that required further improvement and development.

Study findings confirm that STs' experiences are uniquely constructed and socially negotiated for each individual. A combination of personal, professional and situated identity scenarios is experienced to varying degrees by all STs' which either challenge or support identity development. Experiences embedded within the situated dimension (context-dependent) in HEI/DRB and school learning communities (for both GTPs and PGCEs) are found to be most dominant in shaping STs' identities as science teachers. The quality of emotional/professional support (from NQTs, HEI/DRB personnel and school mentors), training provision and availability of stable teaching environments are all pertinent factors. The various discourses STs' participate in, the professional relationships they establish and a sense of belonging to learning/teaching communities are also found to be an influential mediating factors. Those who experience conflict(s) in these training areas did not always recognise the value of these tensions in developing their teacher identities. Findings also reveal how those who express confidence with their subject-knowledge, felt ill-equipped with the Pedagogical Content Knowledge (PCK) required (e.g. lesson planning) needed to teach their subject matter at a level that pupils could grasp. This signals that greater recognition of the link between PCK and Subject Content knowledge (SCK) is required. This left some STs' feeling despondent and inadequate as science teachers which impacted on their confidence, well-being and hindered their identity development. Study findings have implications at programme/school level and for policy makers by highlighting key areas of the teacher education curriculum/training provision that may require development and further improvements. Addressing key concern areas may subsequently provide future STs' with stronger more stable learning/teaching environments where identity development as science teachers could be enhanced. There is a need for teacher educators to encourage STs' to be mindful of all their experiences (positive or negative) and how experiencing highs and lows is a normal part of becoming a teacher and can prove fruitful in shaping their identities as science teachers.

## List of abbreviations

<b>BM</b>	Behaviour Management
<b>CEPD</b>	Career Entry Development Profile
<b>CPD</b>	Continuing Professional Development
<b>DP</b>	Diagnostic Placement
<b>DRB</b>	Designated Recommending Body
<b>EAL</b>	English as an Additional Language
<b>EBITT</b>	Employment Based Initial Teacher Training
<b>GTP</b>	Graduate Teacher Programme
<b>HEI</b>	Higher Education Institution
<b>HoD</b>	Head of Department
<b>ICT</b>	Information Communication Technology
<b>ITE</b>	Initial Teacher Education
<b>ITT</b>	Initial Teacher Training
<b>KS</b>	Key Stage
<b>LP</b>	Long Practice
<b>NQT</b>	Newly Qualified Teacher
<b>OFSTED</b>	Office for Standards in Education
<b>PCK</b>	Pedagogical Content Knowledge
<b>PGCE</b>	Postgraduate Certificate of Education
<b>PM</b>	Professional Mentor
<b>QTS</b>	Qualified Teacher Status
<b>SCK</b>	Subject Content Knowledge
<b>SEN</b>	Special Educational Needs
<b>SM</b>	Subject Mentor
<b>ST</b>	Student Teacher
<b>TA</b>	Teaching Assistant
<b>TI</b>	Teacher Identity
<b>UT</b>	University Tutor
<b>ZFM</b>	Zone of Free Movement
<b>ZPA</b>	Zone of Promoted Action

## Acknowledgement

I would firstly like to take this opportunity to express my appreciation and deepest gratitude to the five student teachers who made this study possible.

I would also like to say a huge thank you to Dr Kate Wall for giving me the opportunity to embark on this journey. Thank you to Dr Pamela Woolner, David Wright, Debbie Redshaw, Elaine Hall and to all the research staff at the Centre for Learning and Teaching for welcoming me with open arms and for your incredible support.

A huge thank you to my lovely friend Amy Searby who has been a big sister to me and thank you to her wonderful family for their unconditional love, support and encouragement when it was most needed. I would also like to thank my four wonderful furry friends Buster, Penny, Amber and Molly for their company whilst completing this thesis. My sincere gratitude and thanks to Patricia and Peter Hunt for treating me like their daughter and giving me the love and encouragement needed.

My final thanks goes to my Grandmother who I miss dearly and to whom this work is dedicated to and to my family. My sincere appreciation and thanks also to my family for their patience and love. Thank you to my big sister Kerry Killworth and friend Sarah Devi for their continuous love, motivation and support. Finally, thank you to my future husband Manjeet Kalsi for your incredible love and support.

## Table of Contents

Abstract .....	i
Abbreviations .....	ii
Acknowledgement .....	iii
Contents .....	iv
List of Figures .....	ix
List of Tables.....	x
List of Graphs .....	xi
Thesis structure .....	xii
Chapter 1. Introduction .....	1
1.1 Introduction.....	2
1.2 Background to the research .....	2
1.3 Rationale for conducting this study.....	3
1.4 Research questions .....	6
1.4.1 Research timeline and overview .....	8
Chapter 2. Literature Review.....	9
2.1 Chapter introduction: an outline.....	9
2.2 The notion of identity: an overview .....	10
2.2.1 Conceptualization of identity as an internal or external phenomenon .....	13
2.3 Teacher identity: an overview .....	14
2.3.1 The four basic assumptions of teacher identity proposed by Rodger & Scott (2008).....	15
2.3.2 Day & Kington's (2008) teacher identity model .....	16
2.4 Key experiences which may shape STs' identities as teachers.....	20
2.4.1 The role of prior learning & experiences.....	20
2.4.2 The role of context .....	22
2.4.3 The role of learning communities .....	24
2.4.4 The role of relationships.....	25
2.4.5 The role of emotions .....	25
2.4.6 Reflective activities.....	26
2.5 Challenges faced in science teacher education .....	28
2.6 Valsiner's (1997) extended zone theory.....	29
Chapter 3. Methodology .....	31

3.1 Introduction.....	32
3.2 Philosophy underpinning the methodology used: some considerations .....	33
3.3 Multi-methods data collection .....	36
3.4 Justification for the use of case study design in this study .....	38
3.4.1 Key criticisms of case study research & how criticisms were addressed .....	39
3.4.2 The context of the present study .....	40
3.4.3 Socioeconomic contexts of STs placement schools.....	44
3.5 Insights into research methods utilized in previous studies on teacher identity.....	45
3.6 Data collection instruments .....	48
3.6.1 Sampling: selection & recruitment of cases .....	48
3.6.2 Design of the self-completion half-termly questionnaire .....	49
3.6.3 Piloting of the half-termly questionnaire .....	50
3.6.4 Post-training questionnaires .....	51
3.6.5 Justification for using semi-structured interviews .....	54
3.6.6 STs' interviews.....	54
3.6.7 Gathering of documentation.....	55
3.6.8 Diamond ranking .....	55
3.7 Consideration of methodological issues.....	58
3.7.1 Reliability & validity.....	58
3.7.2 Triangulation .....	59
3.7.3 Ethical considerations .....	59
3.7.4 Informed consent .....	60
3.7.5 Confidentiality, anonymity & non-traceability .....	60
3.7.6 Influence of my role as the researcher.....	60
3.8 Conclusion .....	61
Chapter 4. Findings & Analysis .....	62
4.1 Introduction.....	63
4.1.1 Data analysis procedure .....	63
4.1.2 General structure of each case study.....	68
4.2 George's Case Study: an introduction .....	73
4.2.1 George's own childhood experiences of science & the teacher he aspired to be .....	74
4.2.2 Reasons for choosing the PGCE route .....	74

4.2.3	Key aspects of HEI training that George felt most positively about .....	75
4.2.4	Key aspects of HEI training that George felt less positively about .....	75
4.2.5	School placement 1: an introduction to Georges DP school context .....	79
4.2.6	Key aspects of training in DP school that George felt most positively about.....	79
4.2.7	Key aspects of training in DP school that George felt less positively about.....	80
4.2.8	School placement 2: an introduction to George’s LP school context.....	84
4.2.9	Key aspects of training provided in LP that George felt most positively about.....	84
4.2.10	Key aspects of training provided in LP that George felt less positively about.....	86
4.2.11	Overall teacher identity scenario that George experienced.....	90
4.2.12	How George felt overall by the end of his training .....	91
4.2.13	Descriptive summary of George’s training experience overall.....	91
4.3	Tracey’s Case Study .....	93
4.3.1	Tracey, an introduction to prior learning & other experiences.....	93
4.3.2	Tracey’s own schooling experiences & the teacher she aspired to be.....	94
4.3.3	Reasons for choosing the PGCE route .....	94
4.3.4	Key aspects of HEI training that Tracey felt most positively about .....	95
4.3.5	Overall key aspects of HEI training that Tracey felt less positively about .....	97
4.3.6	School placement 1: an introduction to Tracey’s DP school context .....	100
4.3.7	Key aspects of DP training that Tracey felt most positively about .....	100
4.3.8	Key aspects of DP training that Tracey felt less positively about .....	102
4.3.9	School placement 2: an introduction to Tracey’s LP school context .....	106
4.3.10	Key aspects of LP training that Tracey felt most positively about.....	106
4.3.11	Key aspects of LP training that Tracey felt less positively about .....	108
4.3.12	How Tracey felt about her overall training journey .....	117
4.3.13	Overall level of support Tracey received from her PGCE tutor, SM’s & PM’s .....	118
4.3.14	Tracey’s self-rated teaching progress, satisfaction with training pathway & expectations .....	119
4.3.15	Overall teacher identity scenario that Tracey experienced .....	120
4.4	Stacey’s Case Study .....	121
4.4.1	Stacey, an introduction .....	121
4.4.2	Reasons underpinning the decision to enter the teaching profession.....	122
4.4.3	Stacey’s own learning experiences & the kind of teacher she aspired to be .....	122

4.4.4	Reasons for choosing the GTP .....	123
4.4.5	Key aspects of DRB training Stacey felt most positively about .....	124
4.4.6	Key aspects of DRB training Stacey felt less positively about .....	124
4.4.7	Main school placement: an introduction to Stacey’s school context.....	127
4.4.8	Key aspects of first school training Stacey felt most positively about .....	127
4.4.9	Key aspects of first school training Stacey felt less positively about .....	129
4.4.10	Second school placement: an introduction to Stacey’s school context.....	134
4.4.11	Key aspects of second school placement Stacey felt most positively about .....	134
4.4.12	Key aspects of second school placement Stacey felt less positively about .....	137
4.4.13	How Stacey felt about her overall training journey .....	140
4.4.14	Tracey’s self-rated teaching progress, satisfaction with training pathway & expectations .....	141
4.4.15	Overall teacher identity scenario that Stacey experienced.....	142
	Chapter 5. Discussion and Implications.....	144
5.1	Chapter overview: Introduction .....	145
5.2	Variations in STs’ emerging identities as science teachers: key mediating influences.....	148
5.2.1	Reasons for choosing the GTP or PGCE route .....	148
5.2.2	Professional identity: reasons for entry to the profession & the kind of teacher each ST aspired to be .....	149
5.2.3	Professional identity: continuing professional development.....	151
5.2.4	Professional identity: the teacher standards .....	151
5.2.5	Professional identity: workload.....	152
5.2.6	Personal identity (1): STs prior experiences & learning .....	152
5.2.7	Personal identity: academic background .....	153
5.2.8	Personal identity: previous career(s) experiences .....	154
5.2.9	Personal identity: experiences with young people .....	154
5.2.10	Personal identity (2) STs’ unfolding struggles during training process.....	155
5.2.11	Situated identity: combined influence of contextual factors & learning communities.....	156
5.2.12	Influence of school socioeconomic contexts on STs’ training experiences .....	157
5.2.13	The ZFM offered in HEI/DRB & school learning communities.....	158
5.2.14	The ZPA provided in HEI/DRB & school learning communities .....	164
5.3	Conclusion .....	172
	Chapter 6. Conclusion .....	175



6.1 Introduction.....	176
6.2 Conceptual links between the study findings & its original contribution to the existing knowledge base .....	177
6.3 Study Limitations .....	180
6.4 Recommendations for further research.....	181
References.....	184
Appendices.....	195
A. Draft interview schedule:- Interview 1.....	195
B. Draft interview schedule: - Interview 2.....	197
C. Draft Interview schedule: Interview 3.....	201
D. Half-termly questionnaire.....	203
E. Identity questionnaire .....	204
F. Tick box questionnaire.....	207
G. Example of an interview transcript .....	210
H. Printed Material Request Form – Permission Agreement .....	224
I. Consent form .....	256
J. Summary of research project for study participants .....	257

## List of Figures

Figure 1	Components of a social theory of learning: an initial inventory.....	8
Figure 2	Conceptual framework I: key theories .....	10
Figure 3	Proposed teacher identity scenarios.....	19
Figure 4	Ontological and epistemological stance underpinning the research methodology...35	
Figure 5	Pertinent aspects of interpretivism and constructivism used in study.....36	
Figure 6	Summary steps taken to address shift in research focus.....	43
Figure 7	Embedded multi-methods research design and data collection tools used .....	47
Figure 8	Diamond ranking and the organisation of different descriptors.....	56
Figure 9	Conceptual framework II: qualitative dominant multi-methods research design ....	61
Figure 10	Initial analytical framework.....	61
Figure 11	George’s life experiences prior to starting the Science PGCE course .....	73
Figure 12	Diamond ranking: Summary of George’s key experiences in HEI & DP school ....	82
Figure 13	Diamond ranking: Summary of George’s key overall experiences in LP school ....	87
Figure 14	George’s experiences: Scenario 2 of Day & Kington’s teacher identity model.....	90
Figure 15	Tracey’s life experiences prior to starting the Science PGCE course.....	93
Figure 16	Diamond ranking: Summary of Tracey’s key overall experiences experiences in HEI & DP school.....	104
Figure 17	Diamond ranking: Summary of Tracey’s key overall experiences in LP school ....	114
Figure 18	Tracey’s experiences: Scenario 3 of Day & Kington’s teacher identity model .....	120
Figure 19	Integrated teacher identity model.....	173
Figure 20	Stacey’s life experiences prior to starting the GTP course.....	121
Figure 21	Diamond ranking: Summary of Stacey’s key overall experiences in her first main school placement.....	131
Figure 22	Diamond ranking: Summary of Stacey’s key overall experiences in her second short school placement.....	138
Figure 23	Stacey’s experiences: Scenario 4 of Day & Kington’s teacher identity model.....	143

## List of Tables

Table 1	Summary of contemporary conceptions of identity in teacher education.....	16
Table 2	Construction of STs’ identites: Summary of reflective activities used in existing studies.....	27
Table 3	Case trainees school socioeconomic contexts .....	44
Table 4	Summary of data collection tools utilised by other studies on teacher identity .....	45
Table 5	Summary of overall key findings relating to George’s training experiences in HEI.....	78
Table 6	George’s DP school: socioeconomic context.....	79
Table 7	Summary of overall key findings relating to George’s training experiences in his DP school.....	83
Table 8	George’s LP school: socioeconomic context.....	84
Table 9	Summary of overall key findings relating to George’s training experiences in his DP school .....	88
Table 10	Summary of overall key findings relating to George’s training experiences in his LP school.....	89
Table 11	Summary of overall key findings relating to Tracey’s training experiences in HEI99	
Table 12	Tracey’s DP school: socioeconomic context.....	100
Table 13	Summary of overall key findings relating to Tracey’s training experiences in her DP school.....	105
Table 14	Tracey’s LP school: socioeconomic context .....	106
Table 15	Summary of overall key findings relating to Tracey’s training experiences in her LP school.....	116
Table 16	Summary of overall key findings relating to Stacey’s training experiences with her DRB.....	126
Table 17	Stacey’s main long placement school: socioeconomic context .....	127
Table 18	Summary of overall key findings relating to Stacey’s training experiences in her main long placement.....	132
Table 19	Stacey’s second short placement school: socioeconomic context.....	127
Table 20	Summary of overall key findings relating to Stacey’s training experiences in her short second school placement.....	139

## List of Graphs

Graph 1	George's self-rated teaching progress, satisfaction with training pathway & extent to which training expectations were met.....	92
Graph 2	George's self-rated support received from PGCE tutor, Subject Mentor's & Professional Mentor's.....	92
Graph 3	Tracey's self-rated support received from PGCE tutor, Subject Mentor's & Professional Mentor's.....	92
Graph 4	Tracey's self-rated teaching progress, satisfaction with training pathway & extent to which training expectations were met.....	92
Graph 5	Stacey's self-rated support received from DRB tutor, Subject Mentor's & Professional Mentor's.....	92
Graph 6	Stacey's self-rated teaching progress, satisfaction with training pathway & extent to which training expectations were met.....	92

## Thesis structure

The structure of this is presented in six separate chapters which are as follows:

**Chapter 1: Introduction:** the current chapter provided insights into the background of the study, rationale for conducting the study, outlined the general interest of the study and introduced the research questions.

**Chapter 2: Literature Review:** this chapter presents various themes central to the study which are: (1) the notions of identity and teacher identity, (2) key experiences which may shape STs' identities as teachers

**Chapter 3: Methodology:** this chapter provides the rationale underpinning the ontological and epistemological stance taken, discusses the study's case study research methodology, provides an explanation for the data collection tools used and offers insights into the data collection process.

**Chapter 4: Findings & Analysis:** this chapter explores the qualitative and small amount of quantitative data obtained from interviews, diamond ranking and questionnaires (open ended and tick box) and diamond ranking. Findings are then reported separately in detail for each of the three case studies.

**Chapter 5: Discussion and implications:** this chapter discusses the findings reported in the previous chapter and refers to previous studies to make conceptual links with the study's research questions. Discussions on what implications study findings have for ITE and schools is also integrated.

**Chapter 6: Conclusion:** this chapter encapsulates the research undertaken. It addresses the study's limitations and offers suggestions in which future research should be directed.

## **Chapter 1. Introduction**

This chapter is presented in five constituent parts:

**Section 1.1:** offers an introduction to the chapter

**Section 1.2:** presents the background to the study

**Section 1.3:** provides the rationale for conducting the research

**Section 1.4:** presents the study's research questions

**Section 1.5:** summarises the structure in which the thesis is presented

## 1.1 Introduction

This chapter introduces the thesis by providing an overview of the research focus, key lines of inquiry explored and encapsulates the overall structure of the thesis.

## 1.2 Background to the research

The importance of providing outstanding training to student teachers' is a necessity if we are to continue in the quest of transforming the lives of young people. This has been recognised through a recent publication by the DfE exploring 'the vision for a world-class teaching profession'. This somewhat echoes the words of Malala Yousafzai and her absolute belief in the power of education which she voiced in the renowned speech she delivered at the Youth Takeover of the United Nations: 'One child, one teacher, one pen and one book can change the world' (Yousafzai, 2013). As McKinsey (2007) point out, high standards of teaching is the most pertinent school-based factor in student achievement. This is reflected in educational systems worldwide with 'the most successful countries recognising the fundamental truth that the quality of an education system cannot exceed the quality of its teachers' (DfE, 2014 p. 5). In line with this, the UK Coalition Government published a White Paper in the year of 2010 focussing on 'The Importance of Teaching' which proclaimed:

*'we recognise the vital importance of good quality teachers and teaching, and set ambitious proposal for reform: our vision was, and remains, for England's schools to be on a par with the best in the world' (DfE, 2014 p. 3).*

This White Paper proposed initial steps which endeavoured to 'make teaching an attractive profession for the brightest and the best, and to support schools' and teachers' to help each other in the quest for improvement' (DfE, 2014 p. 5). However, whilst reviewing the literature, it has been revealed that such a great vision may prove difficult to fulfil with the issue of 'retaining early career teachers' being 'particularly problematic' (Ferguson-Patrick, 2011 p. 109). As Saka et al., (2012 p. 1221) point out, 'if we are to lessen teacher attrition and more effectively support teachers' during their development, a better understanding of what occurs during their induction into the profession is needed'. This is where considering STs' identity development in teacher education is pertinent and is becoming widely debated for different reasons. For instance, 'STs' must undergo a shift in identity as they move through programmes of teacher education and assume positions as teachers' in today's challenging school context' (Beauchamp and Thomas, 2009 p. 175). Therefore, it is important that STs' are well-supported throughout this process to alleviate praxis shock by STs' becoming more aware of their own identities (e.g. from student to teacher). However, a cursory inspection of the literature reveals

that ‘overt attention to these shifts within teacher education programmes have not always been evident’ (Beauchamp and Thomas, 2009 p. 184). Hence, there is a need for the construct of identity to be embraced as an ‘analytic lens to examine aspects of teaching’ to understand how STs’ ‘integrate a range of influences, the necessary confronting of tensions and contradictions in their career’ (Olsen, 2008 cited in Beauchamp and Thomas, 2009 p. 175). Although the significance of teacher identity in education is recognised (e.g. Britzman, 2003; Riopel, 2006; Hoban, 2007), ‘it is unclear how recognition of this importance translates into concrete action in the form of teacher education programme design and activities’ (Beauchamp and Thomas, 2009 p. 184). Hence, a greater awareness of teacher identity development within ITE is needed. This is where the rationale for conducting the present study comes into play which is discussed next.

### **1.3 Rationale for conducting this study**

This study directly engages with the rapidly shifting landscape of today’s initial teacher education (ITE) in England. For instance, the more traditional HEI (Higher Education Institution)-led model (Postgraduate Certificate in Education (PGCE)) is increasingly becoming a more school-led initial teacher training (ITT) model (e.g. employment based initial teacher training (EBITT) routes) where training is predominantly in school contexts. The PGCE is widely recognised to be the more traditional modular based pathway (Foster, 2000) to gaining Qualified Teacher Status (QTS). Conversely, the GTP route was geared more towards accommodating for the training needs of ‘mature, graduate entrants to the teaching profession in England and Wales’ (Smith and McLay, 2007 p. 35). As will be briefly mentioned in Section 3.4.2 (p.40), the GTP route has now been overhauled (September 2013 onwards) and has been replaced with the new School Direct route. With this in mind, it is hoped that anticipated findings in the present study will be applicable to all ITT routes currently on offer and will make a valuable contribution to the existing knowledge base in ITE. Findings may also hold implications for educational policy-makers by proposing improvements for ITT providers through acknowledgment of the powerful voice of STs’ who are at the frontline of ITT. Findings may also be invaluable to prospective students’ and teacher educators’ (across ITT providers in England) by deepening their understanding of STs’ experiences and how aspects of their training can be improved.

The preliminary review of the literature revealed a gap in the existing knowledge base. There appears to be little empirical knowledge which:



- explores solely the ST voice (PGCE and GTP) in the context of secondary science education and Smith and McLay (2007 p. 40-41) also find that ‘the voice of Graduate Teacher Programme trainees’, appears to be absent from published work on the GTP’. Smith and McLay’s study is more generic exploring the ST experience across subject specialisms.
- uses longitudinal studies to empower STs to openly voice their experiences in their own words with ease throughout their training journeys.
- empirically theorises STs’ personal, professional and situated experiences as the development of teacher identity in the context of secondary science education.

This is where the present study steps in to address this gap by focussing on the context of secondary science teacher education. The objective of this study was to pinpoint and theorise STs’ key personal, professional and situated experiences as identity development by exploring factors that were influential in shaping their shifting identities whilst training to become science teachers. In this study, emphasis was placed on the credibility STs’ voices and accompanying experiences hold in terms of improving the delivery of future ITT. After all, STs’ are at the frontline of teacher education programmes and hence can offer invaluable insights into ways ITT can be improved. Collaboratively, steps can then be implemented with the ultimate goal of delivering outstanding ITT in England by providing innovative training that generates outstanding teachers’.

My interest in STs’ training experiences and identity development arose from my own training experiences and the highs/lows I encountered through the GTP route back in 2007. Therefore, I personally have a good understanding of the trials and tribulations involved in becoming a science teacher having been through the process myself. My early training experiences were infused with immense difficulties particularly as a result of a poor working relationship established with my school mentor. Later on in the process, my experiences became more positive. What helped me through my journey was the support I received from my family coupled with my previous life experiences. Hence, I became interested in learning more about STs’ diverse training experiences by taking into consideration individuals personal, professional and situated experiences and under what conditions these can shape teacher identities.

The inspiration for conducting this study was also ignited by reading an EdD longitudinal study conducted by Moses (2009) which compared PGCEs' and GTPs' teacher training expectations and experiences in the context of secondary Physical Education. Some of Moses (2009) study aims and research interests align with my own and explore some key themes which are of interest to me but in the context of secondary science education. These key areas encompass: -

- STs' academic background, previous career(s) and job role(s), prior experiences working with young people and reasons for choosing their particular training pathways
- Partnerships between the learning communities of HEIs' (Higher Education Institutions'), DRBs' (Designated Recommended Bodies') for the GTP (Graduate Training Programme) and school contexts
- Programme training content offered on the PGCE and GTP routes
- Aspects of training provision STs' feel positively and less positively about
- Insights into the personal and professional mentoring support received by STs'

For this reason, it was felt necessary to adapt and apply certain aspects of Moses (2009) research methodology and data collection methods to fit the purpose of my own research aims. I similarly wished to conduct a longitudinal case study which would enable me to track STs' training progress and unfolding real life lived experiences over their 10-month training journey. This offered rich opportunities to analyse STs' learning and development in terms of identity development. The present study addresses the question of how STs' in the secondary science context learn from their experiences from different training contexts/wider communities and how such experiences appear to shape STs' identities as science teachers. This is particularly a challenge for science teacher education when STs' own schooling and university experiences can create conflicting images of science teaching. This is often the result of discrepancies between the decontextualized training delivered in HEIs' and DRBs' and the practical realities that classroom teaching brings (Goos, 2005). What Moses's (2009) study did not do was theorise STs' experiences as teacher identity development. Such theorisation only appears to have been researched and applied in the context of mathematics teacher education (e.g. Blanton, Westbrook and Carter, 2005; Goos, 2005; Hussain, Monaghan and Threlfall, 2011; Bennison and Goos, 2013).

## 1.4 Research questions

In light of the rationale offered above, the overall aim of this study was to take a holistic approach to evaluate STs' personal, professional and situated experiences and to theorise these as the development of their teacher identities as science teachers. Three ST case studies were chosen to be the focal point of the study. References were made to Day and Kington's (2008) teacher identity theoretical model throughout the study which encompassed the three proposed identity dimensions (personal, professional & situated identity) of interest in the present study (see Section 2.3.2, p. 16). Wenger's social theory of learning framework is also embraced to fit the purpose of the present study (Figure 1, p.8). This framework captured the essence of the key aspects the present study endeavoured to explore. Previous studies have similarly brought together community of practice ideas and identity theories with it being acknowledged as a pertinent factor in shaping teacher identities (e.g. Franzak, 2002; Assaf, 2005; Seidl & Conley, 2009; Trent, 2010 & Farnsworth, 2010). The interconnected components of Wenger's framework, Day and Kington's (2008) identity model and Valsiner's (1997) basic extended zone theory concepts of Zone of Free Movement (ZFM) and Zone of Promoted Action (ZPA) were used in this study in the context of science teacher education as an integrated analytic framework. This dynamic and empirical approach of utilising identity, social theory and situative theories assisted in theorising STs' experiences as identity formation. This particularly proved fruitful in deepening insights into the situated dimension of identity and the intricate scenarios which challenged or supported STs' identity development as science teachers whilst participating in complex, socially organised teaching and learning practices in the contexts of HEI, DRB and school teaching and learning communities. This intergrated analytic framework was therefore central to the data analysis process and steered the overarching structure of the study so that the following research questions could be addressed:

1. What personal, professional and situated experiences contribute towards supporting or challenging the development of STs' identity as science teachers?

This relates mainly to Wenger's 'learning as doing' & 'learning as becoming' theory (practice & identity)

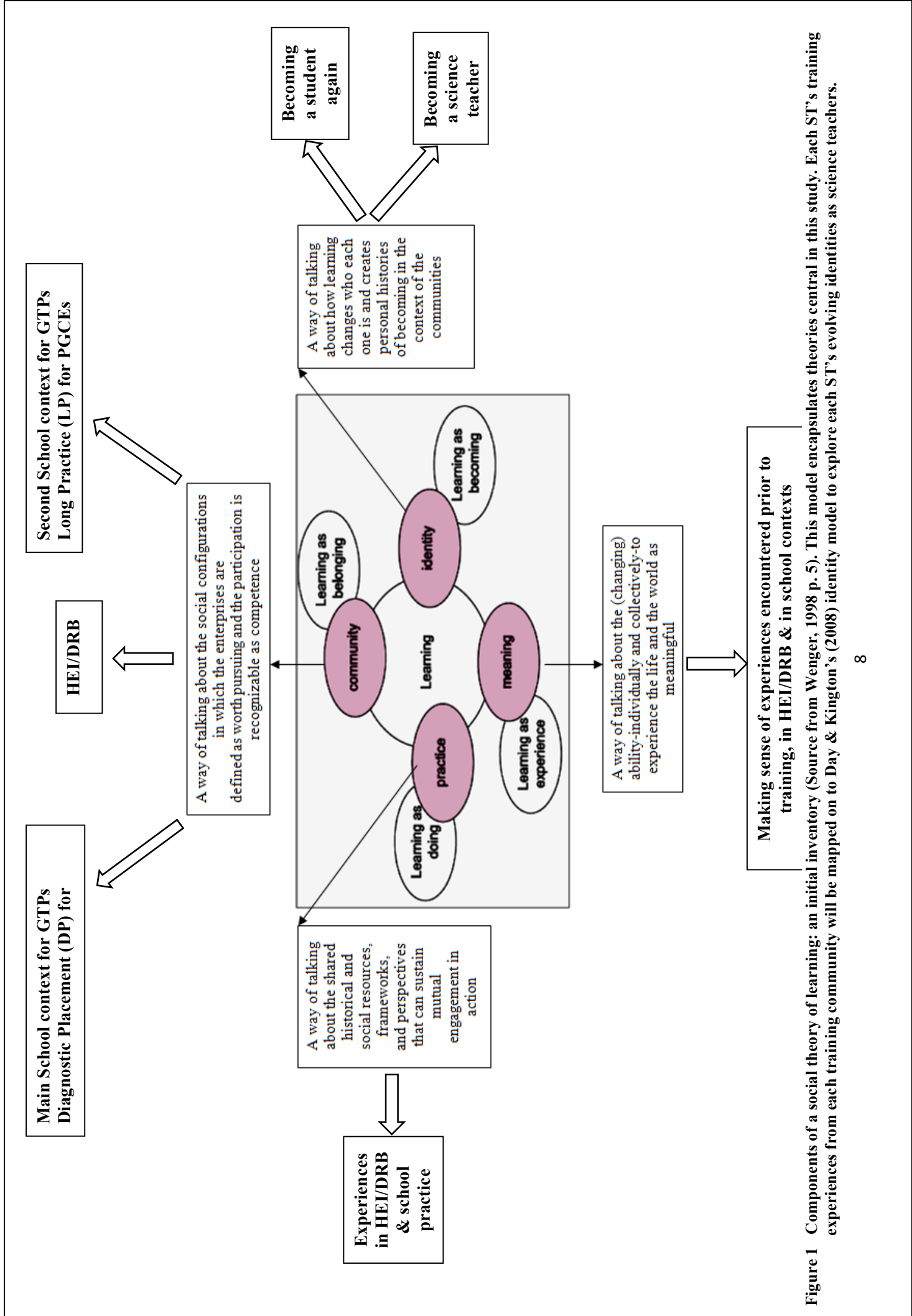
2. What meanings do STs' construct from their perceived experiences and how do they learn from these in terms of identity development?

This relates mainly to Wenger's 'learning as becoming' and 'learning as experience' theory (making meaning)

3. What are the key features of teacher education programmes (HEI and DRB) and school learning communities which support or challenge identity development?

This relates mainly to Wenger's 'learning as becoming' and 'learning as belonging' theory (community)

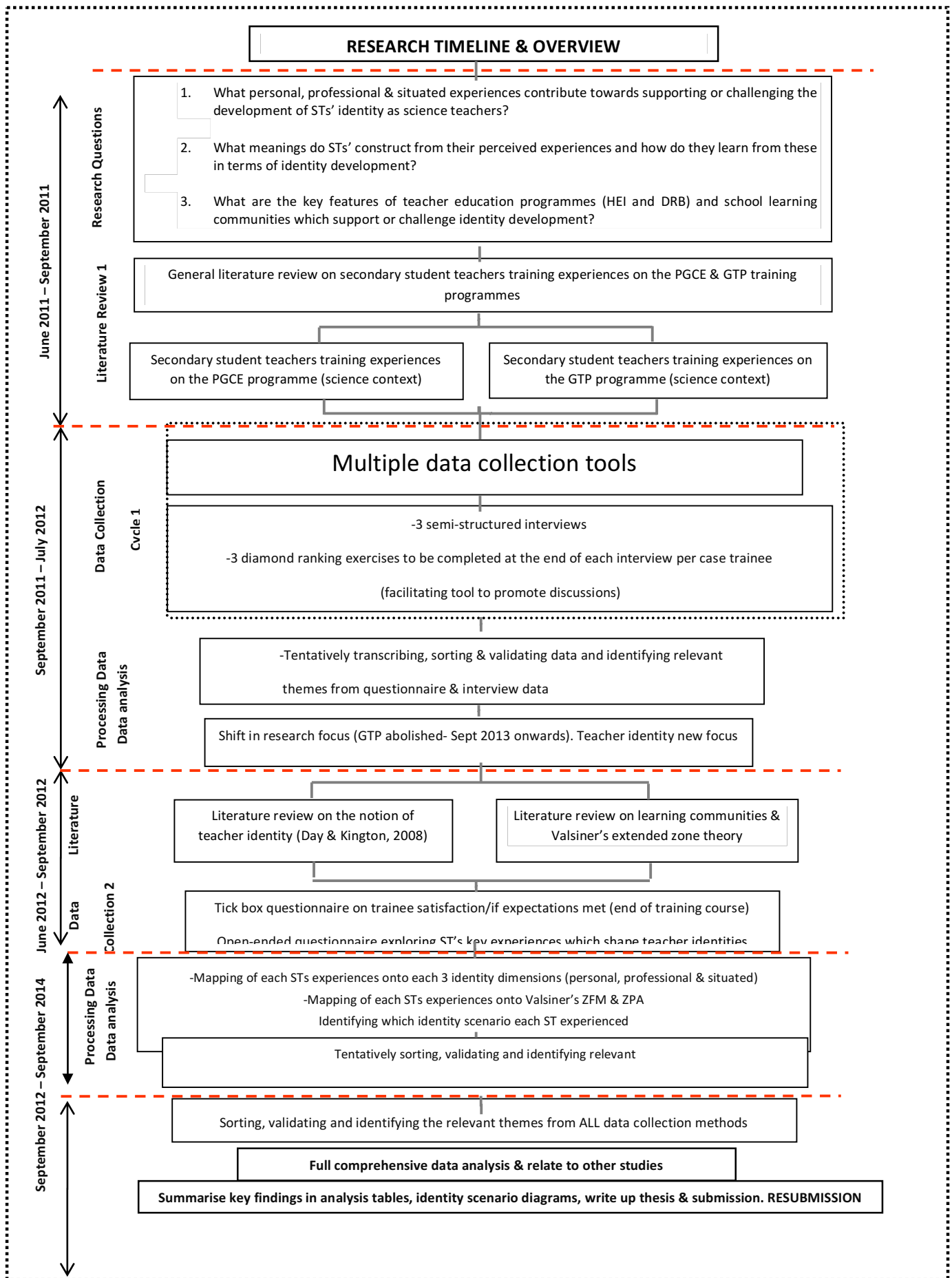
In the quest to address these questions, it is hoped that the study will encourage teacher educators to be more aware of key areas of science in current teacher education programmes where greater efforts are needed to improve STs' overall training experiences and subsequent development of teacher identities. Study findings may also hold potential implications for policy-makers to prompt and inform debates about the current landscape of ITE provided in England.



**Figure 1** Components of a social theory of learning: an initial inventory (Source from Wenger, 1998 p. 5). This model encapsulates theories central in this study. Each ST's training experiences from each training community will be mapped on to Day & Kington's (2008) identity model to explore each ST's evolving identities as science teachers.

### 1.4.1 Research timeline and overview

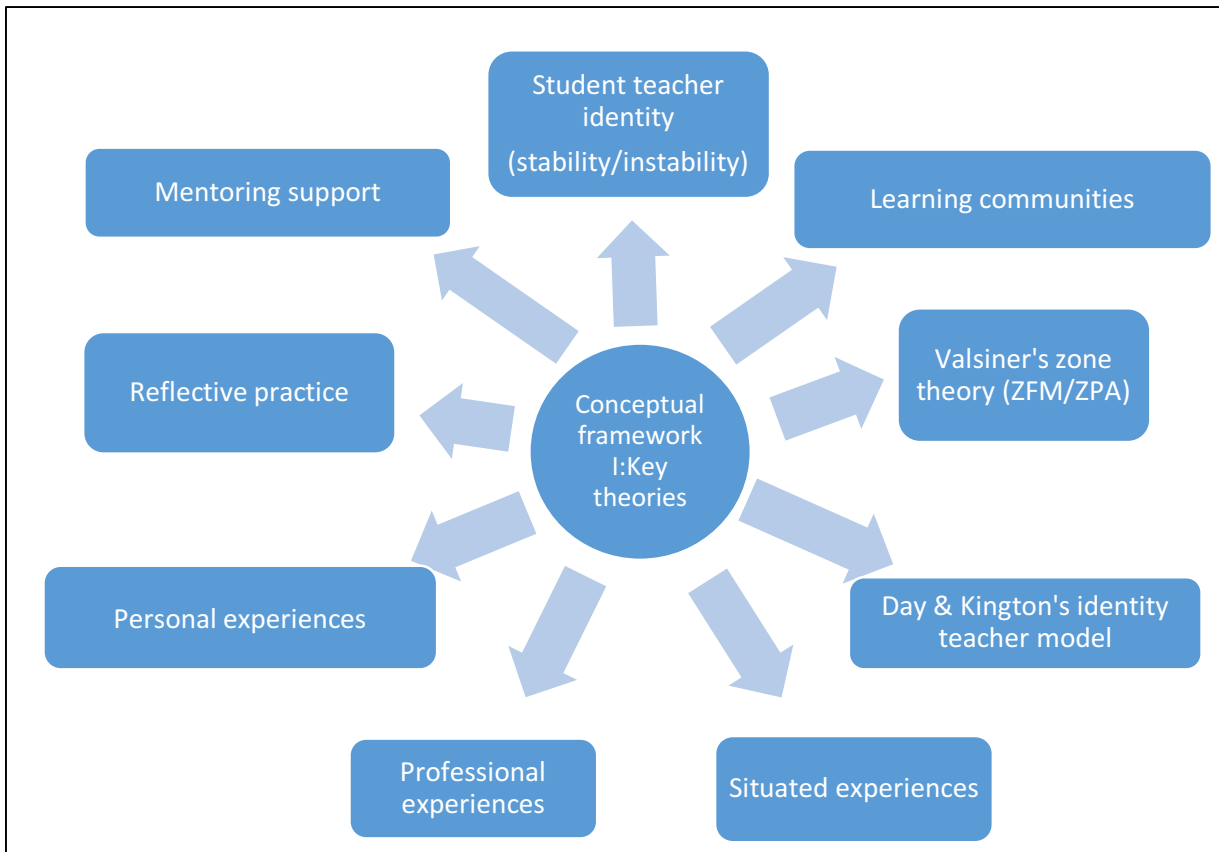
The chart below provides a simple, clear overview of the study’s research timeline to set the scene.



## **Chapter 2. Literature Review**

### **2.1 Chapter introduction: an outline**

The social theory of learning framework that Wenger (1998 p. 4) proposes, describes four interconnected components which ‘characterize social participation as a process of learning and knowing’. These components have been summarised in Figure 1 (p. 8) and definitions that Wenger provides for each component have also been encapsulated. The relevance of this framework to the present study relates to the social perspective adopted here to explore STs’ learning to teach experiences and construction of identity (identity forms the analytic lens in this study). Wenger’s framework therefore captures the essence of what this study is essentially setting out to explore in the context of science teacher education. The framework also mirrors the structure of the review to be presented here. This will initially involve providing an overview of identity followed by the notions of teacher identity and how the researcher perceives its importance to be in secondary science education. Discussions in these three consecutive sections will reflect the component of ‘learning as becoming’ in Wenger’s framework. Secondly, a thorough review of empirical literature reveal snapshot insights into five key areas identified in the literature which explore STs’ ITT experiences (but focus appears to be predominantly in school practice and not so much in the HEI context, which the present study aims to explore to fill this gap in existing research). Experiences which lie in the following key areas appear pertinent to shaping STs’ professional identities and will therefore be explored further; prior learning and experiences, context, learning communities (this section reflects the component ‘learning as belonging’ and will integrate an overview of situated learning), relationships, emotions, relevance of course provision and reflective activities. This section will provide evidence which reflect Wenger’s components of ‘learning as doing in practice’ and ‘learning as experience and meaning’ making. The review then moves onto exploring Valsiner’s (1997) extended zone theory concepts of ZFM and ZPA and how this theory may benefit the analysis of the professional and situated identity dimensions in this study. Figure 2 (p. 10) illustrates some of the theories which contributed towards compiling this chapter. These theories were identified as useful for the exploration of STs’ experiences and each theory will be discussed in further detail below.



**Figure 2** Conceptual framework 1: key theories that are central to the present study. These are the theories that the study will place emphasis on to ensure the ST voice is heard about their viewpoints and experiences within their unique teacher training contexts.

## 2.2 The notion of identity: an overview

Former conceptualisations of identity have historically evolved overtime through interpreting the behaviours enacted by human beings. More recently, particularly over the past few decades, it is a topic which has ignited much interest amongst researchers who have become increasingly fascinated with this powerful issue not only in teacher education but across multiple disciplines. So much so, that a lack of consensus and coherence into its precise meaning is evidently widespread in the existing literature (Schwartz, 2001).

Identity is a complex concept with researchers offering many interpretations in relation to its meaning. It can encompass an array of theme areas spanning across group membership (Brown, 2000), individuals internal systems (Schwartz, 2001) and positions taken in conversations (Benwell & Stoke, 2006). In particular, identity can be better understood by adopting a social perspective, which is what the present study attempts to do. This is because it can often address complex issues that centre on who we are as individuals (e.g. the personal dimension (seeing one as an individual ('the self') - who



am I?) and how others (e.g. members of a social group) perceive us and our identities and vice versa (the social dimension - who are you? or in the plural sense, who are we?).

As Day & Kington (2008 p. 9) put it, 'identity is the way we make sense of ourselves to ourselves and the image of ourselves that we present to others'. In this sense, the diverse images one projects to others in different social situations and contexts can lead to identity becoming multiple and shifting in nature. Rodgers and Scott (2008 p. 736) agree with this observation in the context of teacher education by stating:

*'when teachers' identities are shaped, at least in part, by the external forces of context and relationships, identity necessarily becomes a multiple and shifting affair'.*

Although one can be perceived as a 'self-sufficient subject' or as the 'the self' (Gill, 2000, p 54), there is unfortunately no escaping from others perceptions of you in relation to the kind of person you are. This is somewhat captured in a quote from Beijaard et al's (2004., p 108) study who write that identity formation is an 'ongoing process, a process of interpreting oneself as a certain kind of person and being recognised as such in a given context'. Identity is therefore considered in the present study to be a relational phenomenon which is not fixed or stable because it is 'always in the making' and consequently multiple and varied in nature (Rodgers and Scott, 2008 p. 736). What makes us who we are and how we present ourselves can be in continual flux (i.e. identities can become shifting and multiple in nature) because of the dynamic settings and diverse institutional environments in which one is exposed on a daily basis (Lemke, 2008). Likewise, according to Gee (2001, p. 99):

*'the 'kind of person' one is recognised as 'being', at a given time and place, can change from moment to moment in the interaction, can change from context to context, and of course, can be ambiguous or unstable'.*

Similarly, also in support of this observation, is Goffman (1963) who proposes individuals have multiple 'selves' which often emerge to adapt to specific situations. Rodgers and Scott (2008, p. 736) also capture the nature of identity well in their following description:

*'identities appear to be like a deck of cards spread out on a tabletop; any one might be turned up at any time, depending upon the who, what, and where of circumstances'.*

This quote highlights the complexity and difficulties that maybe encountered in trying to make sense of identity because of the range complex identities that can exist. Story-telling is one effective method used to help make sense of identity by capturing the 'ongoing process that involves the interpretation

and reinterpretation of experiences as one lives through them' (Kerby, 1991 cited in Beijaard et al., 2000; Sfard and Prusak, 2005). A study by Carter and Doyle (1996) adopt a life history and personal narrative research approach to indirectly explore the notions of self and identity. They argue that 'the process of learning to teach, the act of teaching and teachers' experiences and choices are deeply personal matters inexorably linked to their identity and life story' (Carter and Doyle, 1996, p. 120). They also emphasise the integral role social contexts play in shaping identities as can be revealed through life history research. Research which incorporates personal narratives is also argued to be an invaluable way of providing individuals the opportunity to share their personal learning to teach experiences through the method of story-telling. Carter and Doyle (1996) go on to argue how the process of becoming a teacher requires novice teachers' to:-

- transform their identities
- skilfully adapt their own understandings so they match institutional realities
- think about how they will present themselves within their own classrooms

Overtime, stories can become dynamic and transform when crossing boundaries across multiple contexts where multiple relationships are formed. Referring to identity as 'the self' therefore cannot be viewed in a vacuum, because other interacting and changeable factors can influence its construction and there is a necessity to take such factors into consideration.

Similarly, Ball (1972) describes how identity can take two forms, namely as substantial and situated identities. He describes substantial identity to entail how one feels about themselves and situated identity as being the way in which one presents him/herself accordingly to particular situations. In this sense, it can be argued that the personal dimension (e.g. cognitive and psychological notions) and social dimension (e.g. age, race, nationality, gender, social, cultural and historical factors) are both intricate domains which cannot be separated. Wenger (1999 p. 146) also maintains that 'the focus must be on the process of their [the personal and social dimension] mutual constitution'.

The role others play is also integral to the way identities can evolve over time in addition to ones participation in social situations and diverse communities. This steers the focus towards conceptualising the idea of having collective identities where one relates to others interests and subsequently feels a sense of belonging to a group or a number of groups simultaneously (Tajfel & Turner, 1986). Diverse levels of alignment and affiliation may also be experienced by members who belong to a group (Lemke, 2008).

## **My comments**

To conclude, in light of the brief discussions presented above, one maybe required to adjust their personality or roles so that they are better aligned with the wider social structures (society). Identity is influenced by a multitude of factors like social and cultural settings in which individuals are exposed to. Additionally, the personal experiences one accumulates individually or as a member in a community can also be integral. Such factors can result in identity construction being in constant flux, from being shaped in a particular ways to becoming completely transformed. The next sub-section now elaborates on how identity can be described as an internal and external phenomenon.

### ***2.2.1 Conceptualisation of identity as an internal or external phenomenon***

In everyday life, individuals bring with them prior experiences which can be considered to be either internal and external forces. These forces can influence the way identities are shaped (Carter and Doyle, 1996). The construction of external identity may involve the relationships individuals form in their daily professional workplaces. The emotions one feels and the stories they tell can often be infused with deep meanings that one constructs through the experiences they encounter on a daily basis. These aspects signify the internal aspects which can contribute towards shaping an individual's identity.

In the traditional reseach fields of sociology and psychology, identity is perceived through the lens of social roles that one plays in communities and through 'the self'. Such contributions offered in the past have therefore also been integral in conceptualising identity and understanding its meaning by drawing on perspectives from both fields. Similarly as above, from a sociological perspective, Cote & Levine (2002, p. 9) claim that identity is 'the result of external, social, political and economic forces'. This perspective similarly echoes assumption one of identity which Hoffman-Kipp (2008) highlight (see Table 1, p. 16 for definition). This stance certainly supports existing arguments about the powerful influences teaching and learning communities for example can exert on transforming identities over time. Conversely, from a psychologist's perspective, identity is claimed to encompass the individual's personality (as 'the self), motivation, internal knowledge, emotions, values and belief systems (Schwartz, 2001). As Feiman-Nemser & Floden (1986, p. 103) maintain, beliefs are 'psychologically held understandings, premises, or propositions about the world that are felt to be true'). Such beliefs (rooted in the mind) can be inextricably connected to various sources ranging from reflections on personal life histories, academic experiences or learning experiences encountered in the cultural contexts of a workplace one is assigned to (Clandinin & Connelly, 1987). For example,

in the present study, this would be the school institution, teachers' classrooms and/or HEI/DRB contexts where STs' are essentially working as learners and teachers'. A similar psychological perspective is also echoed in the definition of teacher identity offered by Flores & Day (2005) in Table 1(p. 16).

### **2.3 Teacher identity: an overview**

The conception of teacher identity as one form of identity has also developed into a powerful issue, attracting much scholarly attention in the field of teacher education (e.g. Kompf et al, 1996; Bullough, 1997; Connelly & Clandinin, 1999; Korthagen et al, 2001; Day et al., 2006; Hoban, 2007; Olsen, 2008). However, as Beauchamp and Thomas (2009 p. 175) point out 'even a cursory examination of the literature reveals that there is much to understand if one is to appreciate the importance of identity in teacher development'. My own review of the literature confirms this and reveals a gap in the context of secondary science education. The vast literature which does exist offers a burgeoning array of varying and complex definitions (Beijaard *et al.*, 2004) which also like the notion of identity itself fails to offer consensus in relation to its precise meaning. Nevertheless, these contributions have deepened understandings of the role identity, identity formation and 'the self' play in the journey to becoming a teacher. It is therefore necessary to extract and carve out a workable set of contemporary definitions of teacher identity relevant to the present study by drawing on the wider field of teacher education. Hence, I begin with drawing on the work of Rodger & Scott (2008) who have proposed four core assumptions that they believe most contemporary conceptions of identity share. Collectively, each assumption is briefly elaborated on in Table 1 (p. 16).

The present study understands teacher identity within a situative and social theory perspective (studies by Prusak, 2005 and Olsen, 2008 also understand teacher identity in this way). For instance, teacher identity can be viewed as a product (e.g. due to the combined influences on STs') and as a process (e.g. the continuous interactions within teacher development). Olsen (2008 p. 139) views identity as a:

*'label, really, for the collection of influences and effects from immediate contexts, prior constructs of self, social positioning, and meaning systems (each itself a fluid influence and all together an ever-changing construct) that become intertwined inside the flow of activity as a teacher simultaneously reacts to and negotiates given contexts and human relationships at given moments'.*

In this study, STs' identity development is also understood as an ongoing and overlapping process and this is presented visually in Figure 3 (p. 19). However, as previously highlighted in the literature review in teacher education, an array of other complex perspectives also exist on the notion of identity

(e.g. Korthagen et al., 2001; Sachs, 2005; Riopel, 2006; Hoban, 2007; Olsen, 2008). The discussion of findings which follows, confirms how exploring trainees personal, professional and situated identities in the present study was a vital resource ‘to explain, justify and make sense of [trainees experiences] in relation to others and to the world at large’ (MacLure, 1993, p. 311). This was particularly the STs’ in this study whose own prior experiences (e.g. their own schooling experiences & initial experiences in HEI and school placements etc) created conflicting images of science teaching. Such varying conflicts can often arise due to perceived gaps existing between decontextualised knowledge delivered in HEIs/DRBs and the actual realities trainee teachers face in classroom teaching and practice.

### ***2.3.1 The four basic assumptions of identity proposed by Rodger & Scott (2008)***

In a nutshell, the 4 assumptions of identity Rodger & Scott (2008) put forward do successfully capture the essence of what meaning identity holds as captured in other relevant studies in the research field. These assumptions are encapsulated in Table 1 (p. 16) to make navigation to and from each assumption easier when exploring the key themes areas later on. For comparative purposes, also included in Table 1 are exemplar definitions drawn from the wider field of teacher education which similarly appear to resonate with Rodger and Scott (2008) assumptions of identity. Deeply rooted within each assumption is a message for teachers’ to have a greater ‘awareness of their identity and the contexts, relationships, and emotions that shape them, and [to] (re)claim the authority of their own voice’ (Rodgers & Scott, 2008, p. 733).

BASIC ASSUMPTIONS OF IDENTITY	STUDIES WHICH SUPPORT EACH ASSUMPTION
(1) <i>'identity is dependent upon and formed within multiple contexts which bring social, cultural, political, and historical forces to bear upon that formation'</i>	<ul style="list-style-type: none"> <li>• Hoffman-Kipp (2008, p. 153) also argue that identity is 'the intersection of personal, pedagogical, and political participation and reflection within a larger socio-political context'.</li> </ul>
(2) <i>'identity is formed in relationship with others and involves emotions'</i>	<ul style="list-style-type: none"> <li>• Zembylas (2005) emphasise the integral role of emotions in the construction of identities.</li> <li>• Campbell (1997) highlights the significant role of emotions when developing relationships with others.</li> </ul>
(3) <i>'identity is shifting, unstable, and multiple'</i>	<ul style="list-style-type: none"> <li>• Beijaard <i>et al</i> (2004) in their review &amp; in Maclean &amp; White's (2007) study, identity is also referred to as predetermined and unstable.</li> </ul>
(4) <i>'identity involves the construction and reconstruction of meaning through stories over time'</i>	<ul style="list-style-type: none"> <li>• Flores &amp; Day (2006, p. 220) also similarly describe identity as 'an ongoing and dynamic process which entails the making sense and (re)interpretation of one's own values and experiences' that maybe influenced by cognitive, social and personal factors.</li> <li>• Geijsel &amp; Meijers (2005, p. 423) also similarly argue that identity is 'the ever-changing configuration of interpretations that individuals attach to themselves, as related to the activities that they participate in'.</li> </ul>

**Table 1** Summary of contemporary conceptions of identity in teacher education which share four basic assumptions as described by Rodger & Scott (2008). Accompanying definitions of identity extracted from other studies which similarly support each assumption are also included.

This brief overview of teacher identity and its four basic assumptions clearly highlight the complex nature of teacher identity as evident in the discussions above. One conclusion that can be drawn is that teacher identity cannot be explored through a single lens. It is essential for researchers to explore teacher identity through multiple perspectives in order to yield a better understanding. This is where the present study considers the teacher identity model as proposed by Day & Kington (2008) which is discussed next.

### 2.3.2 Day & Kington's (2008) teacher identity model

Day and Kington (2008, p. 11) propose a theoretical model for teacher identity which aims to capture the interactions observed between personal, professional and situated dimensions of identity of teachers in different professional life phases. They also explore scenarios which appeared to challenge these teacher identities. They summarise the core features of each identity dimension as understood in the context of their study as follows:

- Personal identity: located outside of school life (e.g. family roles (father, son, partner), social roles). ‘Feedback comes from family and friends, and they often become sources of tension as the individual’s sense of identity can become out of step’.
- Professional identity: ‘reflects social and policy expectations of what a good teacher is and the educational ideals of the teacher’ (influenced by long-term policy, ‘social trends as to what constitutes a good teacher, classroom practitioner etc’). ‘Number of competing and conflicting elements such as local or national policy, continued professional development (CPD), workload, roles and responsibilities’.
- Situated or socially located identity: this is ‘within a specified school, department or classroom’ (affected by ‘local conditions (i.e. pupil behaviour, level of disadvantage, leadership, support and feedback’).

The 4 basic assumptions of teacher identity as put forward by Rodger & Scott (2008) appear to be very closely related to the above 3 dimensions of identity. For instance, the situated dimension of identity mirrors assumption (1) in Table 1 (p. 16). It could be argued that all 3 dimensions of identity that Day & Kington (2008) propose address Rodger & Scott’s (2008) assumptions (2), (3) and (4). This is because teacher identity is most certainly formed through building professional relationships with teachers and other key players in education, all relationships which inevitably involve emotions. Finally, Day & Kington’s (2008) identity model offers a dynamic way to explore Rodger & Scott’s assumption (3) by establishing the extent to which the personal, professional and situated dimensions of identity are shifting in order to obtain a snapshot of the overall stability/instability STs’ identities experience in light of the experiences they encounter and the meanings they construct from these experiences over time (this relates to assumption (4)).

Day & Kington (2008, p. 11) have represented these 3 identity dimensions as Venn style diagrams which depict the four scenarios they believe can challenge each one of the identity dimensions. These diagrams have been extracted from their study and presented in Figure 3 (p. 19) below and provide insights into how particular identity dimensions can become dominant resulting in other identity dimensions becoming distorted and affected as a consequence. The interaction between the personal and professional dimensions of identity is also explored by James-Wilson (2001) who believes it to revolve around how teachers’ feel about themselves and about their students in the professional contexts of their schools.

In summary, teacher identities are developed through a combination of emotional and technical aspects associated with teaching such as subject knowledge, overall classroom management and the level of progress made by students in assessments (Day and Kington, 2008). It can also be constructed through teachers' personal lives, the interactions between teachers' unique personal experiences 'and the social, cultural and institutional environment in which they function on a daily basis' (Sleegers and Kelchtermans 1999, p. 579).

## **Comments**

This overview on how the notion of identity has been conceptualised by other researchers provides a general point of reference to refer back to for the purpose of the present study. Coverage is only given on key literature sources relevant to the present study. Other insightful and valuable literature also exists but due to research time constraints not everything can be included. It is hoped the coverage provided here will somewhat support the critical analysis later on.



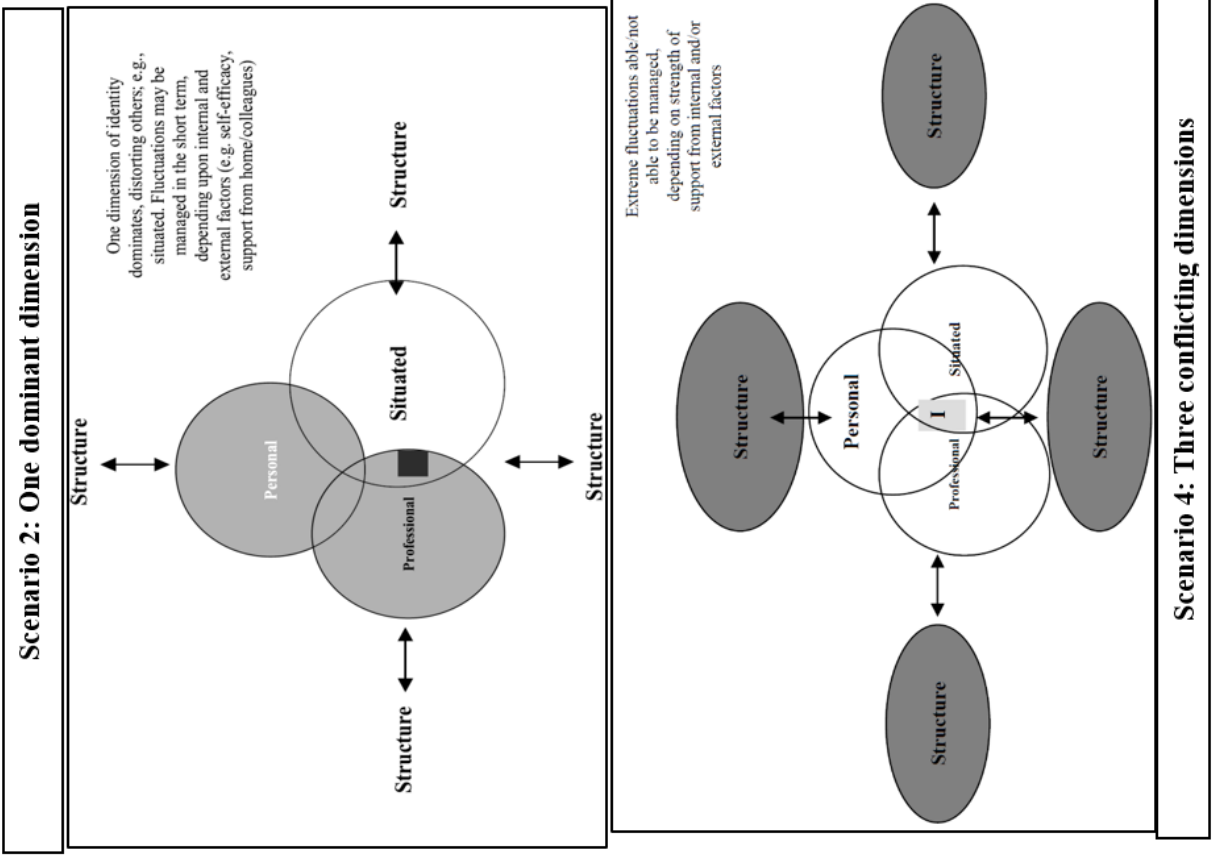
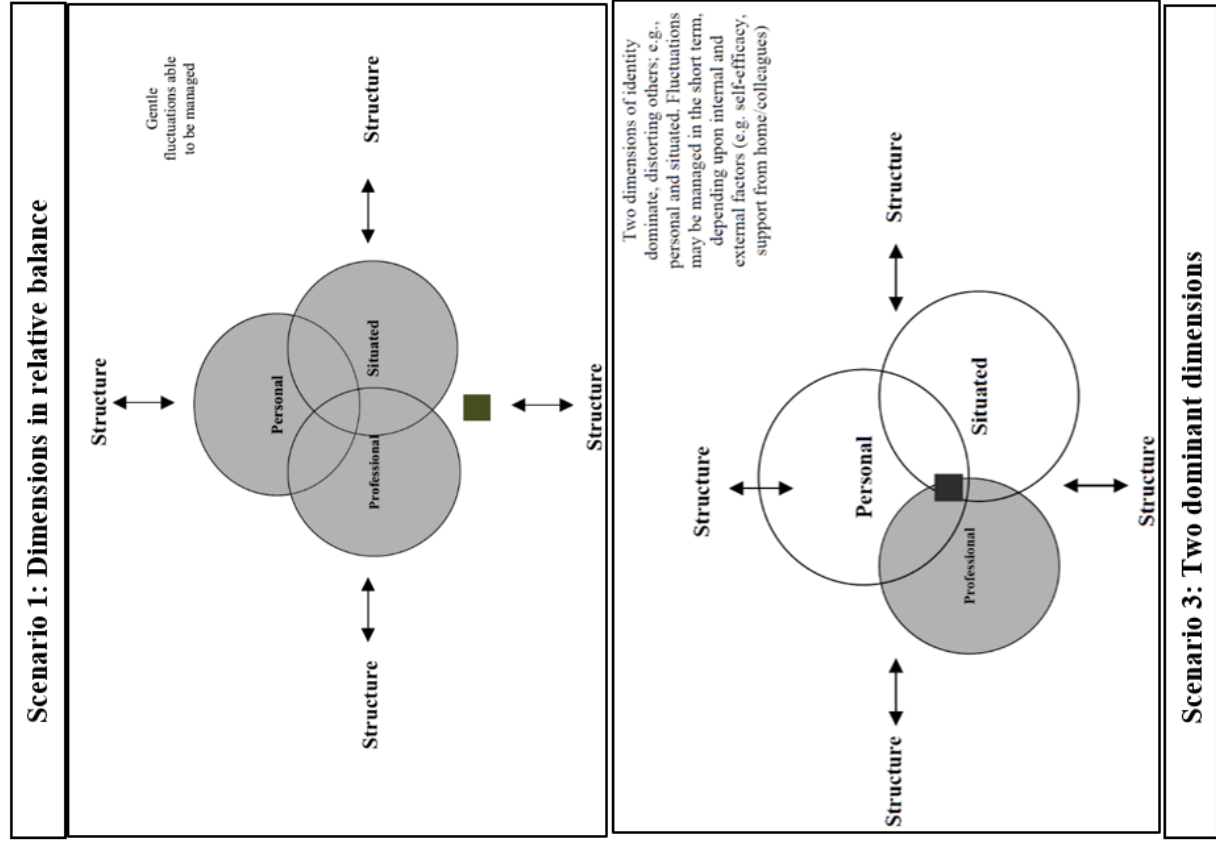
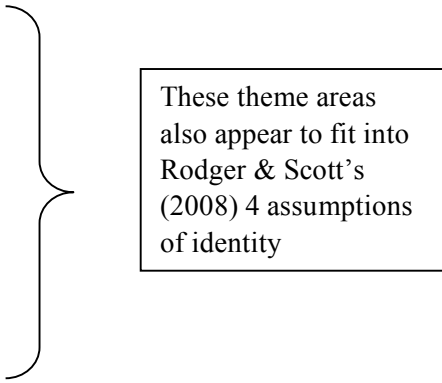


Figure 3 Proposed teacher identity scenarios which have been taken from Day & Kington (2008, p. 13-18) and adapted to be used in the present study.

## 2.4 Key experiences which may shape STs' identities as teachers'

This section now explores key foci of relevant empirical studies which focus on investigating factors pertinent to shaping the professional identities of STs'. Whilst reviewing the literature, it became apparent that a recent review by Izadinia (2013) already existed which also explores the phenomenon in question. This review by Izadinia (2013) proved to be informative and useful in guiding the present study. Nevertheless, the present study also conducted its own literature review including Izadinia's (2013) review to ensure all studies relevant to the present study were included. In doing so, my own review similarly to Izadinia's (2013), reveals how STs' learning to teach training experiences are situated in the following broad interrelated theme areas which appeared to be significant in shaping STs' professional identities:

- Prior learning and experiences
- Context
- Learning communities
- Relationships
- Emotions
- Reflective activities
- Relevance of course provision



These theme areas also appear to fit into Rodger & Scott's (2008) 4 assumptions of identity

An overview of each of these theme areas is presented next. It will become increasingly apparent how each of these theme areas are interrelated and feed into each other. This will subsequently provide a more detailed final summary by the end of the chapter.

### 2.4.1 *The role of prior learning & experiences*

The diverse life experiences and academic backgrounds that teachers' bring to their training can often provide insights into the kind of teacher they aspire to be (Knowles, 1992). It is important to acknowledge such experiences (i.e. STs' do not arrive as empty vessels) when embarking on their ITT journeys and how they can play an influential role in shaping their professional identities in the process of becoming teachers' (Olsen, 2008; Cook, 2009; Daly, 2009). This coupled with their belief systems could also be especially influential in shaping professional identities.

A study based in Ghana by Akyeampong and Stephens (2002) has particularly examined an array of STs' expectations, beliefs, backgrounds and general experiences. They discovered that STs' often

have preconceived ideas and images of teachers'. They therefore advocate the necessity for ITT programmes to illuminate the images and thoughts STs' hold by providing them with opportunities to voice these. In doing so, it could personalise their understanding of teaching by means of actively stimulating greater reflection on classroom pedagogies and professional knowledge (Akyeampong and Stephens, 2002).

Similarly, a study which was conducted in the USA by Olsen (2008) also explored the core reasons STs' gave when explaining their decisions in wanting to join the teaching profession and how such decisions shaped and developed their subsequent professional identities as teachers. The study found that STs' prior life experiences did play an influential role in moulding their thoughts about wanting to enter the profession and the kind of teacher they imagined themselves being. Based on these findings, Olsen (2008) suggests that teacher educators need to become more acquainted with such reasons in addition to promoting greater awareness of the importance teacher identity holds for STs'. In doing so, Olsen (2008, p 37) argues STs' are able to 'learn to identify and adjust what (and how) they learn from their pasts. For example, a Swedish study by Andersson and Hellberg (2009) conducted interviews with STs' whose previous experiences stemmed from being childminders and explores how these facilitated their transition into their ITT programmes. Findings from this study suggest that the prior learning experiences they accumulated in previous careers were found to play a positive role in developing STs' identities both personally and professionally.

A USA based study by Cook (2009) offers insights into the influences that first year teachers' in the context of English education own former teachers' had on their professional teaching experiences (e.g. how they tackled any challenges they faced in practice) and whether observations of their own teachers' influenced the persona they subsequently adopted as teachers' themselves. Cook's (2009) findings revealed that such experiences contribute positively towards enhancing novice teachers' learning opportunities which in turn may help them evolve into effective practitioners. As Izadinia (2013, p. 704) importantly adds:

*'reflecting on their experiences, STs' can recognise sites of dissonance, manage the disequilibrium of their first teaching experiences and create a site of struggle, growth and new understanding'.*

In light of this, it can be postulated that prior experiences such as the ones illuminated above, need greater recognition by ITT course providers so that a better understanding of how prior learning and experiences can impact on shaping STs' professional identities. The next section now moves onto exploring the significant role played by context.

### **2.4.2 *The role of context***

Much of the earlier literature surveyed on the notion of identity appears to primarily centre on the cognitive processes, skills, knowledge and beliefs novice teachers are required to develop to become effective teaching practitioners. More recently however, there has been a gradual shift in focus with research studies also considering the importance of contextual factors (in teachers' work places) coupled with teachers' interactions with other teaching practitioners' and their pupils in shaping teacher identities (Beijaard et al., 2004 & Simon et al., 2011). Some researchers 'define identity solely as a matter of context' (Rodgers and Scott, 2008 p. 734), whilst others define it as being the 'self-in-context' (Fitzgerald, 1993 p. 3). These contexts can encompass for example, ITT programmes, schools, families, political parties and so forth (Coldron and Smith, 1999; Beijaard et al., 2000; Gee, 2001; Agee, 2004; Smagorinsky et al., 2004; Clandinin and Huber, 2005). A study by Clandinin and Huber (2005, p 4), refer to the notion of context as being 'the landscapes past and present in which [a teacher] lives and works. Geertz (1973, p 144-145) refers to culture as 'an ordered system of meaning and symbols, in terms of which social interaction takes place'. Hence, context, culture and social settings in which social practices take place can inevitably play an influential part in shaping STs' identities and how they themselves and others perceive them to be in terms of the kind of person they are (Smagorinsky, 2004; Leuhmann, 2007). Therefore, becoming a teacher can be seen as an idiosyncratic process (a unique and personal experience for each individual), a journey which takes place within the social learning contexts of schools (Bullough, 1992).

Settlage et al (2009 p. 105) similarly claim that identity formation is not something which emerges through experiences alone, rather it is 'created as the individual moves from one event or context to the next'. Moving from one context to the next can result in STs' experiencing 'tensions between the hopes and ambitions [they have] 'for themselves and what they feel they can achieve as a teacher' (Samuel and Stephens, 2006 p. 477). An example to illustrate this can be taken from Smagorinsky et al's (2004) case study research. They describe the ideological tensions new teachers' (in this case a female ST) encounter in their trajectory between the ITT University programme (which adopted a constructivist approach) and teaching site (which adopted a traditional approach) where individuals are required to complete their teaching practice. Smagorinsky et al (2004) points out that the ST's progress in their study was found to be greatly restricted and somewhat stunted due to her mentor's stringent guidance coupled with the imitation teaching strategies she was expected to use in her teaching practice. Hence, shifts in identity were clearly observed when the ST navigated between both these diverse training contexts (Smagorinsky et al, 2004). This revealed a discrepancy between the university's constructivist approaches underpinning the teaching methods utilised to deliver the

teacher education curriculum and the school's more traditional modes of teaching which meant she had no opportunity to apply the theory she had learnt. This issue particularly appears to be prevalent in ITT programmes in England. Perhaps the problem could be addressed by teacher educators looking more closely at the type of schools STs' are placed in for their training practice? This could be accomplished by applying more stringent criteria's which rule out particular partner schools in the future which have previously struggled to offer suitable learning environments for STs' to learn in. Similarly, findings from a UK study by Findlay (2006) also validate the findings which emerge from Smagorinsky et al's (2004) study. This study examined the influence of contextual factors (e.g. relationships formed with others, structure/allocation of work) and learning factors (e.g. level of support and feedback received and STs' sense of commitment and confidence) on the development of identities in five NQT ST's. She found that STs' 'transition from the semi-protected environment of initial teacher training' (p. 526) in university directly into schools where there was no praise or critical feedback given significantly influenced their identities as teachers.

However, Smagorinsky et al's (2004) and Findlay's (2006) studies do both similarly reveal that these tensions that STs' experience between both training contexts (university and school) can be beneficial to STs' identity development as teachers (although perceived negatively by STs' themselves). This is because although some experiences may include tensions, these can be seen as powerful in making a ST stronger and more resilient by allowing them to develop a metaphorical 'thicker skin' if/when exposed to such tensions again. In light of this, it is essential for STs' to make sense of their own experiences to ensure they adjust the theory learnt in university and apply it accordingly to their own teaching practices so that they become more in tune with school cultures. But in doing so, teachers' are evidently expected to comply with the norms already embedded within school communities (e.g. science departments in the present study). In this sense, they have to act in particular ways to adjust their social positions (Olitsky, 2007a & 2007b) and subsequent identities to adapt to particular situations in order to be perceived in different ways by students, colleagues and parents for example. As Rodgers and Scott (2008 p. 734) so importantly point out:

*'lack of awareness of these norms and pressures to assimilate, keep teachers subject to contextual forces, robbing them of agency, creativity and voice.'*

In light of this, there is increasing consensus amongst researchers' about contextual factors and how these maybe influential to shaping STs' identities as teachers. This is a theme area of interest in the present study.

### **2.4.3 *The role of learning communities***

It is argued that a connection exists between ‘identity and practice’ (Wenger, 1999). Hence, identity can be shaped, co-constructed, negotiated and transformed through participation as a member in particular communities (Wenger, 1999). Therefore, as Figure 1 (p. 8) depicts, Wenger (1998) argues that one’s identity develops and blossoms in the process of becoming a legitimate member of a community of practice (CoP). Those who engage with activities situated in learning communities can also play an influential role (Wenger, 1998). Empirical studies which explore the relationship between learning communities and identity development appear to primarily congregate discussions around Wenger’s (1998) work. This encompasses how identity can be conceptualised and portrayed through CoP and discourses. As Izadinia (2012 p. 700) points out, these aspects of Wenger’s work have shown ‘positive outcomes of STs’ involvement in different types of learning communities’.

A number of studies have emphasised the positive impact of learning communities which have established atmospheres consisting of reflection and collaboration in shaping STs’ professional identities. For example, both a UK study by Farnsworth (2010) and a study by Trent (2010) based in Hong Kong report changes they observed in research participants’ beliefs regarding teaching in a community-based learning group and action research project respectively (studies cited in Izadinia, 2012). Another study of relevance to the present study is that of Franzak’s (2002), which is a USA based study that also explored STs’ identity development in relation to learning communities. This study examined one STs’ participation in a critical friend group (CFG) which involved peer assessment and analysis of student’s professional growth through observations and assessing eachothers teaching strategies. The findings revealed significant changes in one STs’ sense of independence, confidence (through reflecting on and improving teaching practices) and subsequent commitment to the teaching profession (Frankzak, 2002). This finding in addition to the findings revealed in the other studies outlined, highlights the powerful nature that collaborative learning communities have in shaping STs’ identities as teachers through the process of reflection. In the same way, a empirical study by Assaf (2005) examined how an reading specialisation programme shaped a STs’ professional identity. The reading programme involved STs’ participation in ‘classroom-based internships. They were asked to reflect on their field based teaching and to write their professional and personal reflections down. The findings here also revealed changes in the feelings and experiences STs’ voiced in addition to the instructional choices research participants made as teachers (Assaf, 2005).

## ***Comments***

In the present study, the STs' are seen both as learners and professional teachers in the contexts of HEI/DRB and schools respectively. Therefore, it is hoped that in the present study, the exploration of STs' key training experiences in the communities of HEI/DRB and school placements may shed some light on the role such unique contexts can play in shaping STs' teacher identities. This will be examined by making inferences from key training experiences STs' voice during the research process. This will provide some insights into how STs' felt about themselves (e.g. 'who they were' at certain points of their ITT year) and subsequently making inferences from the experiences voiced to determine how such experiences appeared to shape their teacher identities.

### ***2.4.4 The role of relationships***

This discussion which explores the role relationships play in constructing STs' identities feeds into the previous discussions on context and learning communities. This is because it is within various contexts where individuals establish relationships with others (Cattley, 2007). For example, in the context of teacher education, the relationships STs' form with students, school and university staff (e.g. the level of support offered) and parents can all contribute towards shaping their professional identities. As mentioned earlier, relationships with others is of paramount importance in identity construction because 'to have an identity one must be recognised as a particular 'kind of person' [in speech marks in original] by others' (Rodgers and Scott, 2008 p. 735). In Smagorinsky's et al's (2004) study introduced earlier, the researchers assert that in cultural practices, one's identity is co-constructed through engaging and interacting with others. The social relationships STs' form in the school and university communities with their students, fellow colleagues, tutors and mentors can therefore be complex in nature and provoke a range of emotions and feelings which are debated to be a key element of identity formation (Britzman, 1993) and this is explored next.

### ***2.4.5 The role of emotions***

There has been an increase in the number of studies exploring emotions (Hargreaves, 2001; Winograd, 2003; Zembylas, 2003; Rodgers & Scott, 2008). The nature of emotion can be argued to be a subjective and conscious feeling and as Zembylas (2005) points out, an experience which is psychologically and socially constructed through every day life within diverse contexts and situations.

A study by Hargreaves (2001) based in Canada involving 53 elementary and secondary teacher participants explored the emotional geographies to identify whether the emotions that teachers hold are entrenched in the conditions and interactions they encounter in their work. This study revealed five emotional geographies which appeared to be significant in fracturing (weakening & creating cracks) in STs' evolving identities as teachers. These are socio-cultural, political, moral, physical and professional geographies. Hargreaves (2001) therefore advocates for more studies to be undertaken so that a deeper understanding into each one of these geographies can be gained.

The study findings here confirm that emotions can indeed be shaped by work conditions that teachers' are exposed to on a daily basis. For example, it is through their interactions with students, colleagues and significant others which can give rise to an array of emotions. A study by Zembylas (2004 p. 226), mentions the issue addressed earlier about STs' having to conform to schools norms which he describes as a form of 'emotional labour'. He elaborates on this with the following statement:

*'teachers identity and emotional discourses are formed within specific school political arrangements, in relation to certain expectations and requirements, [where] teachers [feel they] should conform to particular emotional rules'.*

Here, Zembylas (2004) refers to the way teachers are expected not to bring their emotions into the classroom which can arguably be a difficult thing to do. A study by Winograd (2003) which revolves around the researcher's own experiences after returning to teaching similarly sheds light on the findings which emerged from Zembylas's (2004) study. He particularly shares some difficulties encountered with managing the dynamics of the classroom which subsequently led to him questioning his own competency and effectiveness as a classroom practitioner. He felt caught up in a vicious circle of blaming himself; an emotion which commonly resonates with many other STs'. This is often the case in some school cultures where teachers are blamed and culpable for any failings rather than blaming the structural conditions in which they work (Winograd, 2003 p. 1669).

#### **2.4.6 Reflective activities**

*'We do not learn from experiences. We learn from reflecting on experience'*  
(Dewey, 1938 p. 78)

The above quote highlights what existing research claims that the practice of reflection is a crucial process in shaping STs' professional identities (Korthagen, 2004; Sutherland et al., 2010). As Lin et al (1999, p. 5) points out, reflection can provide STs' with the opportunity to 'construct their own learning through an interaction among their beliefs, their prior knowledge and their experiences'.



Studies which explore the phenomenon of STs' professional identity and how it is shaped have previously used a range reflective activities to gather research data. Some examples of reflective activities utilised by researchers are summarised in Table 2 below:

Reflective tool	Studies
Reflection cycles and forums	<ul style="list-style-type: none"> <li>• Webb (2005)</li> <li>• Maclean &amp; White (2007)</li> <li>• Sutherland et al (2010)</li> </ul>
Reflective journals and written pieces	<ul style="list-style-type: none"> <li>• Walkington (2005)</li> <li>• Cattley (2007)</li> <li>• Poulou (2007)</li> </ul>
Autoethnographies	<ul style="list-style-type: none"> <li>• Estola (2003)</li> <li>• Vavrus (2009)</li> </ul>
Portfolios	<ul style="list-style-type: none"> <li>• Antonek et al (1997)</li> <li>• Chitpin &amp; Simon (2009)</li> </ul>
Drawings	<ul style="list-style-type: none"> <li>• Weber &amp; Mitchell (1996)</li> </ul>

*Table 2 A summary of reflective activities used in existing studies which explore the construction of ST identities*

There is consensus amongst all these studies about the significance of STs' reflecting frequently on their personal feelings, values and beliefs in addition to their teaching practices and other experiences in order to further develop their identities. A study by Maclean and White (2007) used video filming, forums and reflective cycles as data collection tools to explore the development of professional identity in four STs' by asking them to reflect on their own experiences that were filmed in the classroom whilst teaching (with consent from pupils & their parents). The study reported how subsequent changes were evidently observed in STs' use of professional teacher language. Similarly, another study of relevance by Webb (2005) also utilised collaborative reflective cycles STs' who were asked to analyse their former feelings and actions in addition to their attitudes. The reported findings highlighted two emerging key themes which STs' believed were influential in shaping their professional identities as teachers. The first was the teaching contexts of the secondary schools they were placed in and the training provision that was offered by their ITT providers.

A study by Cattley (2007) has used reflective journals/writing to explore whether any changes were seen in the development of eight STs' identities. This was in relation to a reflection exercise where they were asked to reflect on their answers and observations of diverse aspects of teaching environments such as activities in the staff room, daily teaching practices and parent liaison. Five elements were identified as being pertinent to developing STs' professional identity here. These consisted of their awareness of wider political and social world, the importance of supporting their fellow colleagues and relationships established with significant others (e.g. parents and staff).

Other reflective tools include the use of drawings and portfolios (examples of studies presented in Table 2, p. 27). The use of these tools in the studies summarised above were also revealed to be integral to boosting STs' confidence (e.g. reflective portfolios in Antonek et al's (1997) study) and STs' articulation of unexamined tensions in relation to their identity as teachers' (in Weber & Mitchell's, 1996 study). This brief overview of some of the key studies above clearly emphasises the important role reflective activities play in teacher education programmes. To conclude, reflective activities can bring about positive changes in terms of STs' voice, confidence, self-knowledge, sense of agency, self-dependency and finally emotional/cognitive selves. Unfortunately, however, what all these studies fail to do, is to address and document any difficulties researchers may have encountered in using such reflective practices when exploring the construction of STs' identities. This is therefore a gap in the literature which needs to be addressed and what the present study sets out to fill.

## **2.5 Challenges faced in science teacher education**

One of the main challenges faced in science teacher education is how to understand the way STs' can learn from their training experiences within the multiple contexts of HEI/DRB and schools. This challenge is even bigger when also taking into consideration their own their own schooling experiences, their experiences as university students whilst on their ITT programmes in addition to their teaching experiences within school placements. This challenge has often been associated with the discrepancy that exists between the decontextualised theoretical content delivered by ITT providers at HEIs and the actual practical realities of teaching in real everyday classrooms (Loughran, Mitchell, Neale & Toussaint, 2001). Consequently, STs' are frequently faced with the difficulty of having to implement and apply innovative approaches introduced in university into their teaching within very dynamic classroom settings (Loughran, Mitchell, Neale & Toussaint, 2001).

In light of this, a more coherent theory of teacher learning is required in order to consider the key influences of these diverse experiences. Instead of drawing on cognitive theories which portray learning to be an internal mental process, other researchers have drawn on social theory or situative perspectives. These perspectives consider teachers' learning processes through exploration of their participation in socially organised practices which may subsequently contribute towards developing their professional identities as teaching practitioners (Lerman, 2001; Peressini, Borko, Romagnano, Knuth & Willis, 2004). It is already argued that identity emerges when immersed in practice, but identity also influences the way teachers analyse and interpret any problems they come across in their practice. In light of this, teachers' are often required to make teaching related decisions and in the

process of doing so, their professional identities as teachers' gradually evolves whilst in the contexts of their teaching placements.

This section now offers brief insights into a theoretical framework which centres on Vygotsky's Zone of Proximal Development (ZPD) theory. An introduction into the ZPD is given to help the reader understand how another theory proposed by Valsiner (1997) extends on Vygotsky's ZPD theory by introducing two more additional zones called the Zone of Free Movement (ZFM) and Zone of Promoted Action (ZPA). It is the latter extended zone theory which is one of two theoretical analytical frameworks used in the present study. The other framework is Day & Kington's (2008) teacher identity model which is discussed in Section 2.3.2 (p. 16). Both theoretical frameworks have been identified by the researcher as being suitable for exploring how overtime, STs' may learn from their personal, professional and situated learning experiences across training contexts (HEI/DRB and schools) and how these experiences may promote and/or inhibit STs' identity development as science teachers. This may subsequently help the researcher to better understand how STs' evolving identities as teachers' are shaped and the nature of experiences which promote teacher identity development more than others. These experiences may offer insight into the ZFM and ZPA offered within their training contexts and assist in advising ITT providers on how to make improvements to the ITE provision they offer and how training experiences of future STs' could be improved. Please see Section 4.1.1 (p. 63) for further details about why the two theoretical frameworks were chosen.

## **2.6 Valsiner's extended zone theory**

The notion of zone of proximal development was originally invented by Vygotsky with child development in mind (Fani and Ghaemi, 2011). Vygotsky (1978, p. 86) defines ZPD as follows:

*'the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance, or in collaboration with more capable peers'.*

An Vygotskian approach can be taken as a way to extend Vygotsky's notion of Zone of Proximal Development (ZPD) so that it includes individuals goals, actions and and social settings. The concept of ZPD can also be applied to the context of teacher education which is termed Zone of Proximal Teacher Development (ZPTD). The ZPTD is described by Warford (2011 p. 253) as being:

*'the distance between what teaching candidates can do on their own without assistance and a proximal level they might attain through strategically mediated assistance from more capable others (i.e. methods instructor or supervisor)'.*

This gap which exists between STs' present and potential abilities is not the only aspect which impacts on development. There are a further two zones which Valsiner (1997) proposes that consider development in terms of the relationships learners have with other individuals and with the physical environment. These two zones consist of the following and are applied in the present study as follows:

- Zone of Free Movement (ZFM): this zone represents any environmental constraints (in this case, the limitations that school environments may have which may affect STs' training experiences. Such constraints may restrict STs' freedom of action and thought due to lack of resources or pedagogical support available. Hence, in the context of ITT, the ZFM indicates which teaching activities are possible for STs' to deliver. For example, aspects of the ZFM may encompass, the availability of ICT software and equipment, the assessment and curriculum requirements that STs' are required to adhere to and the abilities, motivations and behaviours of school students.
- Zone of Promoted Action (ZPA): this zone refers to various activities adults may provide and support the STs' to help them to implement innovative teaching pedagogies in the classroom. In the context of ITT, the ZPA may symbolise how particular teaching skills maybe promoted in HEIs' and by school based mentors/other experienced teaching staff.

Valsiner (1997) points out the significance of having the ZPA within the STs' ZFM and ZPD. To elaborate, it is essential that the actions promoted are within the STs' reach in order for their identities as teachers' to develop. Furthermore, STs' identities are developed under the influence of the ZPA provided in university and the ZPA provided in school by mentors. This system comprising of three zones takes into account any constraints and opportunities which exist in teaching environments, the teaching activities which are promoted and also the development of STs' pedagogical identity.

**In the present study, only professional and situated experiences will be mapped onto Valsiner's ZFM and/or ZPA. This is because the researcher wished to only focus on each STs' situated and professional training experiences encountered in their HEI/DRB and school contexts.**

## Conclusion

This review of the literature has been invaluable in facilitating the process of establishing the parameters of the enquiry in the present study. My own personal and professional experiences and insights into the chosen field of study have also assisted me in formulating the study research questions and in deciding which methodological approaches to take. This is discussed further next in the Methodology chapter.

## Chapter 3. Methodology

This chapter is segregated in to eight sub-sections:

**Section 3.1:** provides an introduction to the chapter and reiterates the research questions.

**Section 3.2:** offers insights into the study's epistemological and ontological stance.

**Section 3.3:** provides justifications to why a multi-method approach is taken in this study.

**Section 3.4:** provides justifications to why a case study approach is taken in this research.

**Section 3.5:** summaries the research methods used in previous studies on teacher identity.

**Section 3.6:** discusses the data collection tools utilized in the study.

**Section 3.7:** gives consideration to the study's methodological issues encompassing ethical considerations, my role in the study (researcher identity) in the study and the overall quality of the research.

**Section 3.8:** brings the chapter to a close by briefly encapsulating the research methodology.

### 3.1 Introduction

Methodology is a pertinent aspect of conducting research which guides the research process which in the present study, ‘focuses on...[the array of] ‘strategies that can be used to understand social reality’ (Hartas, 2010). This chapter introduces the theoretical models underpinning the research design, considers methodological issues and offers insights into the data collection tools used. Having previously presented the purpose of the present study (Chapter one), it is important to reaffirm the study’s research questions here.

Firstly, the study aimed to answer the following main research question: -

What role do STs’ personal, professional & situated experiences play in shaping their identities as science teachers?

To gain further comprehensive insights into this particular phenomenon, the study wanted to narrow down the focus by addressing the following set of sub-questions:

1. What personal, professional and situated experiences contribute towards supporting or challenging the development of STs’ identity as science teachers?
2. What meanings do STs’ construct from their perceived experiences and how do they learn from these in terms of identity development?
3. What are the key features of teacher education programmes (HEI and DRB) and school learning communities which support or challenge identity development?

The present research study (data collection cycles) were conveyed over the 2011-2012 academic year. Please refer to Section 1.4.1 (p. 8) which provides a chart outlining the present study’s timeline and overview.

### **3.2 Philosophy underpinning the methodology used: some considerations**

The chosen methodology was embedded within a qualitative paradigm which reflected in my belief that knowledge is constructed internally by individuals and can be affected by experiences encountered in the environments around us. My ontological and epistemological beliefs strongly underpinned the decision to replicate some aspects of the methodology used in Moses (2009). ‘The process of constructing knowledge through research is guided by frameworks that enable researchers and communities of practice to ask questions about ontology and epistemology’ (Hartas, 2010). Ontology as a branch of philosophy has been described by Walliman (2006, p. 210) as being ‘a theory of the nature of social entities that is concerned with what there exists to be investigated’. Moreover, Burton and Bartlett’s (2009, p. 17) distinguish it as being ‘about how we see the world and our place within it’ (the nature of reality as Cresswell and Plano Clark (2007, p. 24) put it). The ontological worldview used in this study was that of constructivism, an ‘ontological position which asserts that ‘social phenomena and their meanings are continuously being accomplished by social actors’ (in this case those of STs’) in a unique way (Bryman, 2008 p. 692). Such social phenomena can be created by individuals engaging in ‘meaning-making activities’ in which ‘local and specific’ realities can be generated and constructed (Lincoln and Guba, 2000, p. 165-167). In this respect, educational research tends to be more subjective than objective in nature. This is certainly the case in the present study with emphasis placed on STs’ direct personal, professional and situated experiences. To elaborate, the study considered the social worlds which reflected STs’ ‘natural attitudes’ (Cupchik, 2001 p.1) in their real everyday life and training experiences encountered within their HEI/DRB and school contexts.

Epistemology is commonly defined as being ‘the theory of knowledge’ and ‘about its validation and methods used’ (Walliman, 2006 p. 206) and which explores the relationship ‘between the researcher and that being researched’ (Cresswell and Plano Clark, 2007, p. 24). In this study, the researcher embraced the epistemological worldviews of interpretivism. According to Bryman (2012, p. 712), interpretivism is an ‘epistemological position that requires the social scientist to grasp the subjective meaning of social action’. Taking this into consideration, the researcher felt this research could be perceived as being a hermeneutic study as it was primarily concerned with ‘the theory and method’ of interpreting ‘the world of human experience’ (Cohen & Manion, 1994, p.36), ‘human action’ and ‘the need to understand from the perspective of the social actor’ (Bryman, 2012 p. 712). Hence, applied to the context of this study, this theoretical perspective allowed the researcher to continuously ‘grasp’ onto ‘meanings’ emerging from the experiences/expectations reported by STs’ so that a deeper understanding into the phenomenon in question could be accomplished. These philosophical

worldviews have been summarised diagrammatically in Figure 4 (p.35) and some examples of where interpretivist/constructivist approaches were taken are also clearly summarised in Figure 5 (p. 36).

In this study, STs' personal, professional and situated experiences are explored and how these shape their identities as science teachers can be perceived as a real social activity. However, how each ST views his/or experiences may differ. After all, as Flores and Day (2006 p. 220) assert, identity construction is 'an ongoing and dynamic process which entails the making sense and (re)interpretation of one's own values and experiences'. Hence, it is wise to explore STs' overall experiences (e.g. prior experiences and in the ITT process) to determine how these are influential to teacher identity development. This study therefore seeks to gain insights into the real and raw experiences STs' voice whilst training.

A pragmatic technique was adopted to collect data using a qualitative multi-method approach (Wiersma, 2000) that aligned with interpretivist and constructivist beliefs (Creswell, 2003 p.11). The notion of pragmatism has previously been linked to other studies which have utilised multi-methods in their research (Teddlie and Tashakkori's, 2003a, 2009). I believed the study would benefit from collecting very basic quantitative data (Johnson et al, 2007) generated from questionnaires. Taking this pragmatic approach therefore allowed me to gain deeper insights into the phenomena by combining inductive and deductive thinking (Biesta and Burbules, 2003; Muijs, 2004; Brannen, 2005, Denscombe, 2007; Feilzer, 2010). Creswell and Plano Clark (2007 p. 26) maintain that pragmatism:

*'draws on many ideas, including employing 'what works', using diverse approaches, and valuing both objective and subjective knowledge'.*

The above quote captures the practical aims of the present study (Creswell, 2003, p.20). Adopting a holistic and pragmatic approach to gathering evidence created scope for the researcher to be more flexible and not being restrained to a particular research paradigm (Creswell & Plano Clark, 2007, p. 27). Furthermore, by being pragmatic, it allowed the researcher to deal with any unexpected problems that emerged during the research process.



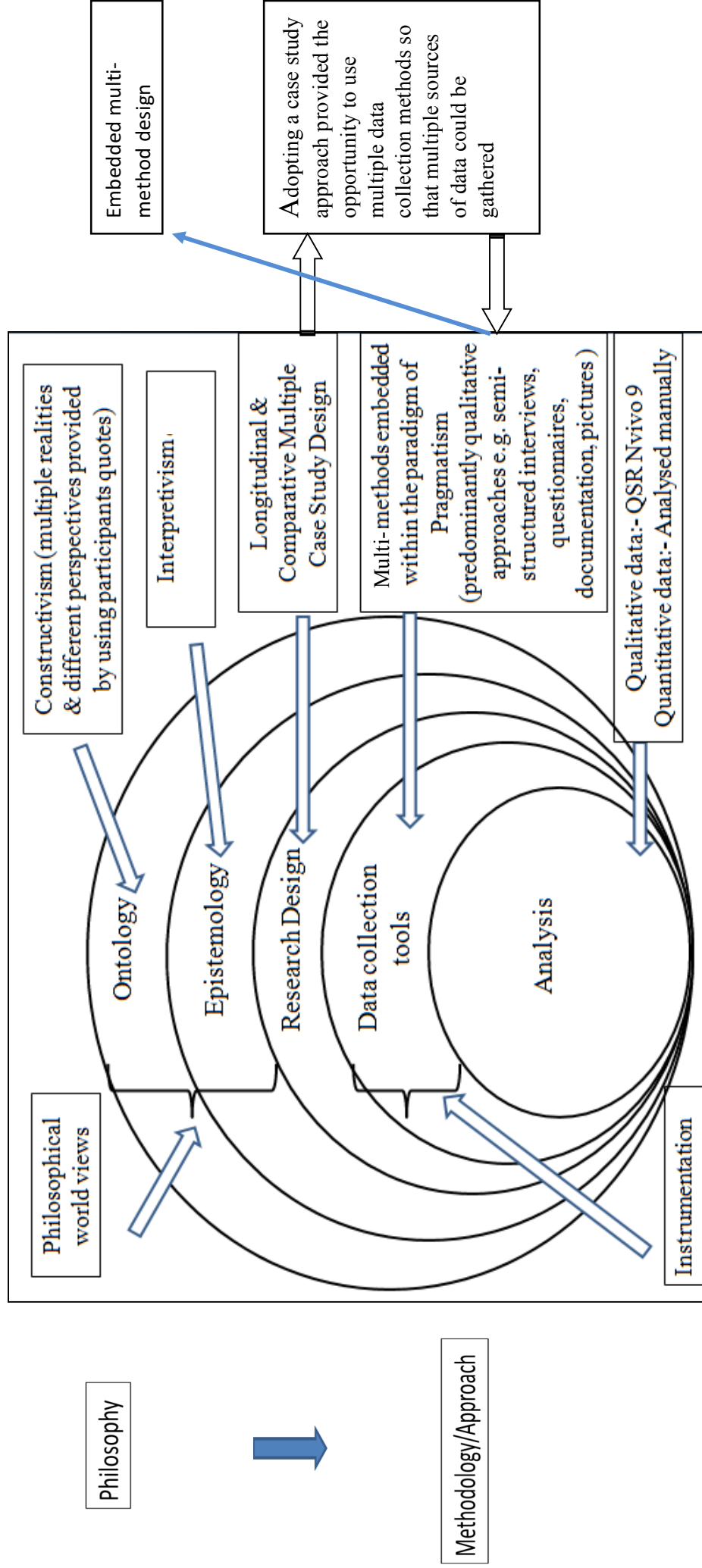


Figure 4 A diagrammatic summary showing the researcher's ontological and epistemological worldviews/stances which underpin the research methodology used in this study. (Model devised during university discussion work in tutorial modified to fit the purpose of the study). The methodological approach taken as a whole was holistic in nature with the researcher utilising a variety of data collection methods to ensure rich data was generated from the research study. The theories used for the data analysis were qualitative in nature and are discussed in Chapters 2 & 4.

		<b>Philosophical worldviews used in this study</b>	
		<b>EPISTEMIOLOGY</b>	<b>ONTOLOGY</b>
		<b>Interpretivism</b>	<b>Constructivism</b>
<b>K E Y  F E A T U R E S</b>	<b>The nature of reality used in the study</b>	Multiple stances/realities were given through STs' voiced accounts of their personal, professional and situated experiences.	
	<b>Research Methodology</b>	The study was largely qualitative but generated basic quantitative data also to address particular research questions	Inductive approach: - I started with individual STs' open-ended views/responses and used these to build up a picture and identify any emerging 'pattern of meanings' (Creswell, 2003, p.9) so that internal generalisations could be made)
	<b>Multi-method approach to collecting data</b>	Pragmatic steps were taken by adopting a multi-method approach to collecting data on the basis of 'what worked' best to address research questions	Conducting a longitudinal multiple case study, I established a close rapport with STs' through interviews

**Figure 5** Pertinent aspects of interpretivism and constructivism used in this study. (Table adapted from Cresswell and Plano Clark (2007, p. 24) with ideas applied to this study)

### 3.3 Multi-method design for data collection

It is evident from the literature review that many researchers in social sciences have previously conducted studies which have adopted either one of qualitative or quantitative research methodologies. However, more recently, the prevalence of multi-methods research has increased with the approach having made significant contributions to knowledge particularly in the field of educational research (Gorard, 2004). The creation of this third paradigm has proven powerful and has 'lead to less waste of potentially useful information...and because figures can be very persuasive to policy-makers whereas stories are more easily remembered and repeated by them for illustrative purposes' (Gorard, 2004 p. 7). However, using

a multi-method approach to collecting data is not frequently used in the studies included in the present study's literature review within the field of ITE. This is because researchers sometimes may prefer to use a single data collection tool which I believe is quite a restricted approach. I agree with Greene's (2007) claim that utilising multiple methods can provide a more fruitful and holistic approach to answering a study's research question(s). It offers both objective and subjective insights which are richer and in-depth. For instance, studies by Flores and Day (2006) and Liu and Fisher (2006) both adopt similar research designs to study the role contexts play in shaping STs' teacher identities using semi-structured interviews and questionnaires.

In the present study, it was appropriate to use a multi-method research design as described by Cresswell and Plano Clark (2007 p. 67-68) which may provide both basic quantitative data and qualitative data. Hence, 'one of the data types [in the present study, this was the basic quantitative data generated from half-termly questionnaires] plays a supplemental role within the overall research design' [in the present study, the research methodology was qualitative in nature] (Hanson et al, 2005). Figure 5 (p. 36) presents an adapted version of Cresswell and Plano Clark (2007) embedded research design model to illustrate how this mutually reinforcing approach was used in the present study. It proved to be beneficial in the current study because it allowed for exploration for subjective meanings arising from STs' unique experiences (from semi-structured interviews, open ended items in questionnaires and diamond ranking) with insight into STs' Likert type questionnaire responses. This improved the generalizability of qualitative findings (Dyer, 1995). Utilising multiple data collection methods also helped to delve into STs' questionnaire responses during interviews where further in-depth insights were gained. The open ended unprompted responses STs' provided in half-termly questionnaires (Appendix D) were used to steer interviews to gain further holistic insights. Hence, these data collection methods really complemented each other and allowed for triangulation and verification of initial questionnaires responses. Using this method also increased the validity of research findings to ensure STs' responses were not taken out of context by confirming this during interviews which diminished the issue of bias and error.

However, we must also ‘challenge dichotomies and perceived incompatibilities that may arise from combining different paradigms and philosophical positions’ (Hartas, 2010 p. 50). Some argue that researchers need to conduct their work in one chosen paradigm and refrain from combining both (e.g. Johnson and Onwuegbuzie, 2004). Practical reasons which stem off this argument include researchers having limited knowledge on combining qualitative and quantitative paradigms, the lengthy time needed to collect and analyse data and cost implications. However, it could be argued that the use of standalone paradigms could also lead to such potential issues arising. These complex factors were of course considered in this study and supports my decisions in why I chose to collect only a small quantity of quantitative data mainly because of the study aims but also because of time constraints.

### **3.4 Justification for the use of case study design in this study**

Previous studies on STs’ experiences and identity development have mainly used case studies (e.g. Flores and Day, 2006; Liu and Fisher, 2006 and Joseph and Heading, 2010). This study mirrors some aspects of Moses’s (2009) case study methodology and adopted the questionnaire Moses devised in her study as it fitted the purpose of what this study also set out to do. Thus, it was pointless devising another similar questionnaire if one already existed. Several definitions case study exist which offer diverse perspectives and insights. For instance, Yin (2009, p. 18) defines the case study as an ‘empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context’. Yin asserts that case study methodology can offer an:

*‘all-encompassing method – covering the logic of design, data collection techniques, and specific approaches to data collection...it is not either a data collection tactic or a design feature...but a comprehensive research strategy’.*

Yin (2009) also points out how case studies should not be mistaken for being qualitative in nature because such an approach can accommodate for both qualitative and quantitative data which can offer opportunities for triangulation.

Conversely, Stake (2005) provides a contrasting perspective, maintaining that case studies should not be considered to be a methodological choice, but about what each ‘unique’ case can offer. Stake (2005, p. 448) argues how some researchers perceive a ‘intrinsic study of a particular case’ to be less important in comparison to studies which set out ‘to obtain generalisations pertaining to a population of cases’. Case study research was chosen in this study as a way to illuminate ‘case uniqueness’ as was reflected in STs’ unique experiences. As Geertz (1973b cited in Cohen et al., 2007 p. 254) assert:

*'Case studies strive to portray 'what it is like' to be in a particular situation, to catch the close up reality and 'thick description' of participants' lived experiences of, thoughts about and feelings for a situation'.*

In addition, this research approach recognised the pertinent role real-life contexts can play (Robson, 2002, p. 178) which offer the flexibility required to explore phenomena in-depth such as the one in this study (Yin, 2009). This was particularly useful in the present study when I had little control over events for instance when Stacey deferred her training. This limited how much data I could gather and subsequently led to the research aims changing direction as discussed previously in Chapter 1.

### **3.4.1 Key criticisms of case study research & how criticisms were addressed**

The external validity (generalizability) of studies adopting a case study approach however is often questioned and raises a cause for concern. It is perceived by some as a controversial and 'less desirable form of inquiry' (Yin, 2009 p. 14) in comparison to other methods such as surveys or experiments. Yin also highlights one key criticism about 'the lack of rigor of case study research' which has led to some perceiving it as being 'soft research' (Yin, 2009 p. 21).

*'too many times, the case study investigator has been sloppy, has not followed systematic procedures, or has allowed equivocal evidence or biased views to influence the direction of the findings and conclusions'. (Yin, 2009 p. 14).*

This study endeavoured to address these issues by adopting a consistent and systematic approach throughout the research process to ensure it was conveyed with rigor and integrity. But it was also acknowledged that due to the nature of the research it could not be entirely guaranteed that all biases and errors would be controlled for. Case study research is also criticised for being 'remarkably hard' to conduct (Yin, 2009 p. 21), time consuming (e.g. longitudinal studies) and for the substantial 'unreadable' textual data it can generate (Yin, 2009 p. 15). This was not the case in this study as large masses of data were organised in Nvivo (Computer-Aided Qualitative Data Analysis Software Programme) and managed systematically. But as Yin (2009, p. 15) also points out, not all 'case studies take a long time' to carry out. The data collection process in this study was over the ten-month teacher training period which is a shorted time duration compared to other studies. Furthermore, only a small sample size of three cases was originally selected.

Bryman (2009) highlights another common criticism about case study research and how finding may not be generalisable to contexts further afield. For instance, the applicability of findings emerging from this study on STs' experiences could be argued to lack generalisability and may not be seen to be applicable to STs' experiences in other HEI/DRB and school contexts due to the individualised and unique nature of the results yielded. Nevertheless, ITT providers, schools and policy makers may indeed consider themselves whether findings here are of value. In this sense the option is there for other teacher educators to disseminate, test and apply findings to their own ITT contexts. Yin similarly discusses how case study research offers insufficient basis for generalisations to be made due to the smaller number of cases used especially in the instance where one case is central to a study. Hayes (2001), points out how it can be difficult to determine whether cases involved in a study are actually representative of the wider population. However, I agree with the analytic generalisation Yin (2009) provides which states it is not about generalising findings to a wider population, but whether theory can be developed out of a study's findings. In terms of internal validity, the present study aimed to collect data in a pragmatic way that endeavoured to address the study's proposed research questions in an authentic way. Additional steps were taken to ensure internal validity and reliability were considered. For instance, all three ST's were openly invited to scrutinise their interviews transcripts (example of a transcript in Appendix G) and final case studies to confirm it was a true reflection of what was said and to ensure findings were interpreted in the way they were voiced.

To conclude, the issues raised in this section were not taken lightly in this study when considering the limitations imposed on the study and issues relating to internal and external validity. The benefits of using a case study design outweighed the issues of subjectivity and researcher bias because the researcher believed the use of triangulation would somewhat counteract and diminish such issues from becoming a problem.

#### ***3.4.2 The context of the present study & change in research focus***

This study adopted a longitudinal case study approach which assisted in systematically tracking STs' experiences, progress and 'lived experiences' over their ten-month training journeys. This generated rich data which provided comprehensive insights into the phenomenon under investigation (Yin, 2009). In this section, a description is given of the research context to provide the reader insights into the setting of the study and to allow for comparisons to be made with other studies. It is hoped this information may aid other researchers to replicate any part of the study if they wish to do so. The HEI, DRB and schools central to the study were all located in the North East of England. The PGCEs were from the same HEI

where this doctoral research was conducted. The GTP ST was also in close proximity in a nearby DRB. This provided easier access to research participants which made it easier to collect data. In total, thirty-two Science PGCE STs' made up the 2011-2012 cohort in comparison to only three GTP ST's enrolled via the local DRB. Nationally, the HEI provider-led route to gaining qualified teacher status remains the most popular course with 20,774 students beginning their training across subject specialisms in September 2014 (Nye, 2014). When the research process initially began in 2011, the GTP programme was the main school-led training route. In the early stages of the research process, the original proposed research aim was to compare the expectations & experiences of secondary science trainees on PGCE and GTP teacher training routes. However, challenges were encountered one year into the research. It emerged that from September 2013, the government was to abolish the GTP programme and planned to replace it with the new School Direct route which since its launch has significantly grown. The research focus consequently shifted into a new direction to ensure research findings were relevant to current teacher education and made a significant contribution to existing research. Preliminary analyses of data revealed how particular experiences affected how STs' felt about their identities as teachers. Therefore, the study's new focus was to theorise STs' personal, professional and situated experiences as identity development by exploring factors which appeared influential to shaping STs' identities as science teachers. It is anticipated that findings from both PGCE and GTP cases (experiences still applicable to the new School Direct route) will prove informative and insightful for all current ITT programmes. Hence, the study now focussed on:

- empowering STs' to voice their feelings about their early training/learning experiences (monitor quality of training provision)
- addressing & understanding key issues/areas of concern to prevent teacher retention in the future
- gaining insights on how to improve the experiences of future science trainees by understanding how positive and negative training & learning experiences influenced the development of STs' identities as science teachers

It is hoped that such insights may then help keep newly qualified teachers in the profession because in recent times, teacher retention has been high as the following quote from Ferguson-Patrick (2011 p. 109) highlights: -

*'Teacher retention has long been recognised as a significant problem in many education systems, while retaining early career teachers is particularly problematic' (Ferguson-Patrick, 2011 p. 109).*

Figure 6 (p. 43) summarises the steps that were taken to address this shift in focus and how this informed the literature review and subsequent data collection.

According to Robson (1993), one distinctive feature of all case studies is the focus given to either a specific case (e.g. organisation, neighbourhood location, individual, events, institutions – Yin, 2009) or a small set of cases (multi-case approach) ‘for comparative purposes’ (Bryman, 2012 p. 709). A multiple case study design was favoured over a single-case study because multiple cases can often generate ‘more compelling’ data, making study findings more ‘robust’ (Herriott & Firestone, 1983 cited in Yin, 2009 p. 53). Having two or more cases can offer greater analytic benefits compared to single case study’s because using a single case would put one in a vulnerable position with being required to put all their eggs in one basket (Yin, 2009). Data in this study was gathered from two PGCE ST’s one GTP ST.



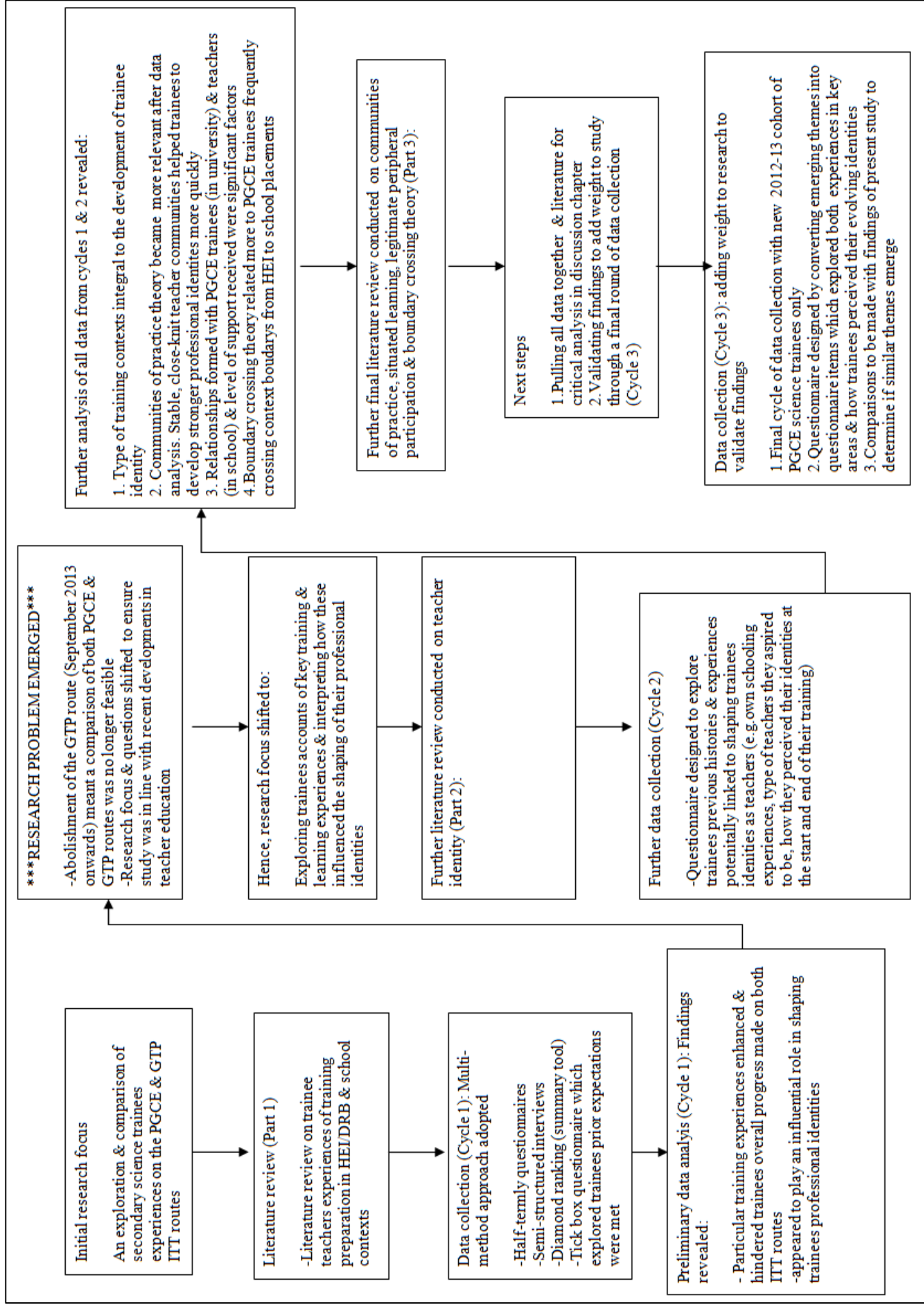


Figure 6 Summary steps taken to address shift in research focus

In the present research, the three case studies yielded enough rich data to provide comprehensive insights into the phenomena. The personal, professional and situated experiences of each of the three ST's are presented as an individual stand alone case study in addition to details about each ST.

### 3.4.3 Socioeconomic contexts of STs' placement schools

Pupils' free school meals (FSM) were used to indicate the comparative advantage and disadvantage of school teaching contexts in which STs' were placed in. In this study, pupils' eligibility for free school meals was segregated into four main categories. School pupils' eligibility for FSMs that were:

- 'below average' were categorised as FSM 1 group.
- 'average' were categorised as FSM 2 group.
- 'above average' were categorised as FSM 3 group.
- 'twice the national average' or 'high proportion' were categorised as FSM 4 group.

Table 3 provides an overview of the case trainees that were central in this study and provides insights into STs' first and second school placements in terms of each schools Ofsted ratings and overall FSM group each school fell into. Further discussions on whether school socioeconomic context were influential in shaping STs' experiences and identity development are offered in Chapter 5.

School	Ofsted rating		Quality of teaching		Student behaviour		FSM	
	First	Second	First	Second	First	Second	First	Second
Case study								
George	O	G	O	O	O	O	3	3
Tracey	O	O	G	G	O	O	3	1
Stacey	G	S	G	S	G	S	4	3

<b>Key:</b>	
<b>S</b>	Satisfactory
<b>G</b>	Good
<b>O</b>	Outstanding

**Table 3 Case trainees school socioeconomic contexts**

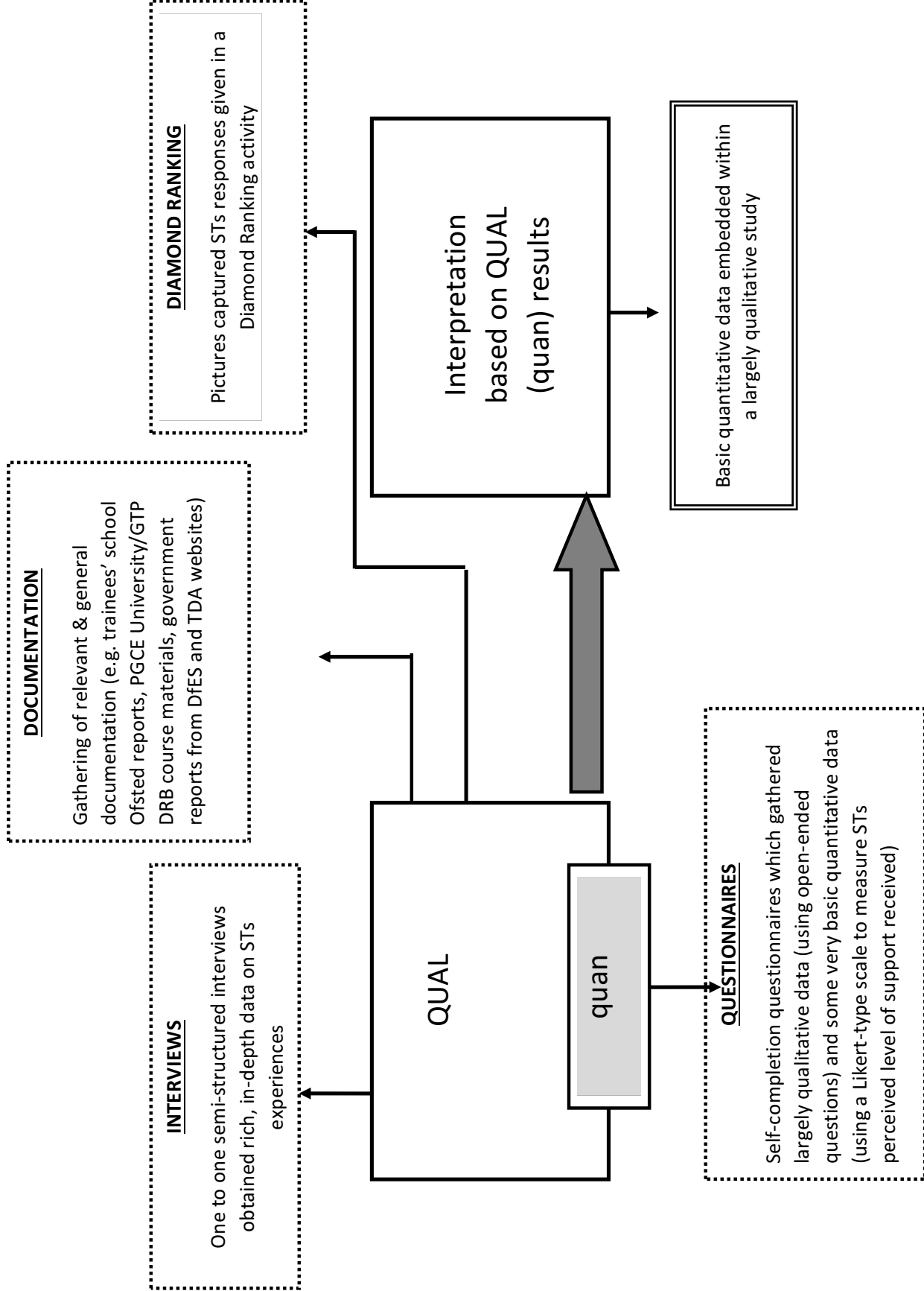
### 3.5 Insights into research methods utilised in previous studies on teacher identity

To reiterate, the study’s chief objective was to gather predominantly qualitative data about STs’ overall personal, professional and situated experiences which were influential in shaping their identities as science teachers’. Research data was collected in a pragmatic way mirroring some methods used in previous studies on the ST experience and teacher identity. Of course the pros and cons of each method used were considered before utilising them in this study. Table 4 provides some insights into data collection tools used in an exemplar selection of previous studies on STs’ which were central to this study and illustrate the array of methods predominantly used.

Specific research focus	Study	Data collection methods used
<b>Identity &amp; context</b>	Smagorinsky et al. (2004)	<ul style="list-style-type: none"> <li>• Artefacts</li> <li>• Concept map activities</li> <li>• Interviews</li> </ul>
	Findlay (2006)	<ul style="list-style-type: none"> <li>• In-depth interviews with teachers/mentors</li> <li>• narratives</li> </ul>
	Flores & Day (2006)	<ul style="list-style-type: none"> <li>• A short essay</li> <li>• Semi-structured interviews</li> <li>• Questionnaire</li> </ul>
	Liu & Fisher (2006)	<ul style="list-style-type: none"> <li>• End-of-course self-reflection report</li> <li>• Semi-structured interviews</li> <li>• Questionnaire</li> </ul>
	Day & Kington (2008)	<ul style="list-style-type: none"> <li>• In-depth interviews</li> <li>• Teacher-generated ‘effectiveness’ histories’</li> </ul>
	Saka et al. (2013)	<ul style="list-style-type: none"> <li>• Classroom/school observations</li> <li>• Interviews</li> <li>• Questionnaires</li> <li>• Teaching artefacts (lesson plans, assessments)</li> </ul>
<b>Prior experiences</b>	Akyeampong & Stephens (2002)	<ul style="list-style-type: none"> <li>• Autobiography of family life &amp; school experiences</li> <li>• Focus groups</li> <li>• Interviews</li> <li>• Questionnaire</li> </ul>
	Olsen (2008)	<ul style="list-style-type: none"> <li>• Documentation about teacher education programme</li> <li>• Interviews</li> <li>• Semi-structured interviews</li> <li>• Teaching artefacts</li> </ul>
	Andersson & Hellberg (2009)	<ul style="list-style-type: none"> <li>• Semi-structured interviews</li> </ul>

**Table 4** Summary of data collection tools utilised by other studies on teacher identity

As evident in Table 4 (p. 45), a variety of data collection tools were used, with some researchers using a combination, whilst others like Andersson and Hellberg (2009) opted to employ one method. The most popular method across studies appeared to be interviews and questionnaires. The present study also used these two main methods in addition to diamond ranking (a technique not previously used in this particular field of research) and some documentary evidence. The researcher believed that these data collection tools were the most appropriate to address the research questions posed in this study as it would allow for a variety of insightful data to be generated. The aim was to collect in-depth qualitative data so that comprehensive insights could be gained about STs' experiences in specific training contexts. Figure 7 (p. 47) presents the tools that were used with further details of each method offered in the next section.



**Figure 7** Model to illustrate the embedded multi-method research design used in this study and the data collection tools that were used (Model taken from Cresswell and Plano Clark , 2007 p. 68 and adapted to fit the purpose of this study)

### **3.6 Data collection instruments**

The following data collection tools were used in this study; semi-structured interviews (Appendices A, B, C), diamond ranking exercise (completed at the end of each interview), half-termly open-ended questionnaire (Appendix D), identity questionnaire (Appendix E), tick box questionnaire (Appendix F) and documentary evidence. But firstly, insights into the sampling technique and criteria used to select the final case study trainees is described below.

#### ***3.6.1 Sampling: selection & recruitment of cases***

Qualitative studies characteristically use small, purposefully selected samples aiming for in-depth ‘understanding whereas quantitative studies characteristically use large, representative samples that aim for generalisability’ (Green, 2007 p. 149). Furthermore, ‘identification and recruitment of participants often requires the permission of one or more gatekeeper’ and of course informed consent from study participants themselves (Hartas, 2010 p. 117). A combined purposive/convenience sampling technique (Walliman, 2007) was used in this study to recruit research participants which proved fruitful due to the limited availability of STs’. In total, a cohort of 35 PGCE trainees were enrolled on the PGCE programme offered at the local HEI for the academic year 2011-2012. PGCE trainees were identified and recruited via the PGCE course leader who as a nominated ‘gatekeeper’ provided access to the full cohort of PGCE students at the local HEI. The GTP programme for the 2011-2012 entry point only had three GTP science trainees enrolled. They were recruited through two gatekeepers. Initially, the PGCE course leader contacted the GTP programme manager at the local DRB, who in turn as the second gatekeeper gave access to all three GTP trainees available. Hence, all three available GTP trainees were invited to partake in the study and with great relief, all three expressed interest in the study by returning consent forms directly to the researcher via email. Data was gathered from a third GTP trainee as a back up, if the inevitable was to happen and a participant wished to withdraw from the study at any point. From the PGCE programme, only ten trainees expressed interest in the study and from this sample, the researcher selected two case trainees with data gathered from the third PGCE trainee used as backup data if an PGCE participant withdrew from the study. Please note, only findings of the two main trainee case studies are included in the present study. Due to the limited availability of GTP trainees, the three PGCE trainees were recruited from the total sample of ten PGCEs available in a ‘strategic way’ (Bryman, 2012, p. 418). This involved using a very simple two item matching criteria which endeavoured to best match three PGCE trainees (out of the ten who gave consent) to the three GTP trainees available on the basis of their age and similarities that existed between the socioeconomic school contexts in which the three PGCE &

GTP trainees were placed in for their teaching placements. This offered some control over the existing personal, professional and situated experiences both PGCE and GTP trainees may already have. Secondly, the matching of placement school socioeconomic statuses of the PGCE trainees to those of GTP trainees offered the opportunity for the researcher to compare PGCE and GTP trainees training experiences to establish whether their personal, professional and situated dimensions of teacher identity were shaped by the socioeconomic contexts of their placement schools. The study fully acknowledges that utilising such a simple matching criteria to select case studies may not be truly representative of the whole study population both in the geographical location the present study was conducted in and nationally.

### ***3.6.2 Design of the self-completion half-termly questionnaire***

The use of questionnaires is widely used in all fields of research and particularly useful in gathering survey data (Cohen *et al*, 2007). They can be administered with ease in the absence of researchers and can generate straightforward qualitative and quantitative data which is relatively easy to analyse (Wilson and McLean, 1994). In the context of this study, a pre-existing and piloted self-completion questionnaire was already available which was originally designed in a previous EdD study by Moses (2009). Permission to adapt the questionnaire and to reference Moses (2009) work was granted by Durham University (Appendix H). It was felt unnecessary to design another similar questionnaire from scratch when a suitable questionnaire already existed. Using a previously piloted and tested questionnaire increased the validity of the questionnaire design.

The same questionnaire was circulated via email to each ST one week prior to every half term. Hence, in total there were five half-termly questionnaires completed by each ST over their training year. This allowed for comparisons to be made between questionnaire responses of STs' training experiences tracked over five points across their training period (see Section 1.4.1, p. 8 for research timeline). Sufficient time was built into the study for each ST to think about their responses, to contact the researcher with any queries and to return questionnaires via email prior to the school holidays commencing. These steps ensured that each ST reflected on their actual experiences which were captured whilst fresh in their minds at that specific point in time whilst in the training process. They were informed that responses would remain anonymous and did not have to answer questions if they did not wish to do so and to leave questions blank if they struggled. All case trainees returned their completed questionnaires. Questionnaires were sent out one week before the following school holidays commencing:

- October half-term
- December end of term
- February half-term
- April end of term
- June half-term

The adapted version of Moses's (2009) half-termly questionnaire used in this study contained two distinct sections: -

- the first set of questions used Likert scale method (Bryman, 2012) and centred on STs' rating (1-6) the level of support they received from HEI/DRB and school mentors.
- the second part contained open-ended questions (unprompted) to fully capture the highs, lows and challenges STs' experienced at that particular point of their training.

Data emerging from these half-termly questionnaires were then used to steer interviews by pinpointing key themes that emerged in STs' which could be delved into deeper in interviews. Thematic analysis was used to analyse open question responses and Likert type data was analysed through creation of bar charts. Please note that as discussed in Section 3.7.4 (p. 60), consent was given by each ST at the beginning of the study.

### ***3.6.3 Piloting of the half-termly questionnaire***

Pilot studies are small scale studies 'conducted prior to the actual research...in order to test the procedures and techniques to see that the work satisfactorily' (Anderson, 1998 p. 11-12). Hence, piloting a questionnaire 'is an important phase of questionnaire construction to identify problems, refine the items' (Hartas, 2011 p. 267) and can increase the practicability of questionnaires. Piloting before administering questionnaires to a selected sample can reveal inaccuracy or ambiguity in questions. Some however, argue that pilot studies are potentially unreliable with them not guaranteeing a true replication of the conditions existing actual studies Silverman's (2000). For instance, pilot studies are not normally conducted with the same sample of research participants original research study (Bryman, 2012). Moses (2009, p. 68) asserts her:

*'study piloted the use of the questions on other trainees not involved in the study purely to check ease of access to answers and to ensure that the results provided the researcher with data that would be of use for the project'.*



However, Moses (2009) does highlight a particular issue arising from the pilot test with regards to whether her presence in the room with participants when completing questionnaires may have influenced their responses:

*‘participants involved in the pilot study completed the questionnaire far more carefully and fully under the gaze of the researcher than actual participants who completed the questionnaire without the researcher present’ (Moses, 2009 p. 68).*

Although Moses (2009 p. 67) asserts that the questionnaire design ‘could be used in its current format for repeated work’, I felt it was necessary to re-pilot it on a sample population in the context of this study to ensure ‘clarity in the use of language and structure’ (Hartas, 2011 p. 261). It was piloted with a small cohort of 30 secondary science PGCE students’ not involved in the actual study but from the same 2011-2012 cohort cases were from. As Hartas (2011) advises, pilot participants were asked to provide any written feedback with regards to the ‘nature, appropriateness and sequencing’ of the questionnaire items (Hartas, 2011 p. 267). This was to ensure that the credibility and feasibility of the existing questionnaire design could actually be determined so that areas of further improvement could be identified for use in this study. Consideration was given to how the researcher’s presence may influence each STs’ responses. Hence, both in pilot study and the actual study, the researcher was not present when each ST completed the questionnaires. This was achieved by circulating questionnaires via email and having them returned back via email which did not put pressure on each ST to give responses they felt the researcher may want to hear. This approach eliminated any researcher bias and formed the platform on which further insights could be drawn from subsequent interviews. In some circumstances, STs’ were late in returning questionnaires, opportunities were given to complete these prior to individual interviews commencing with the researcher absent from the room. Attempts to pilot the questionnaire with GTP STs was difficult due to the limited availability of students. Piloted questionnaires were annotated to highlight problematic areas and proved invaluable by indicating a key issue with terminology used in one question which was subsequently addressed. All expressed satisfaction in relation to the length of the questionnaire.

#### ***3.6.4 Post-training questionnaires (tick box questionnaire & identity questionnaire)***

Two further questionnaires were designed as part of this research study that STs’ were required to complete at the end of their training journey. Both questionnaires were circulated together via email towards the end of training process. The aims and purpose of the two questionnaires and how they were integral to the study was also. Unfortunately, due to time constraints, the researcher was not able to pilot the questionnaire with large numbers. Instead, it was piloted with only eight PGCE

students who were not involved in the study. They kindly highlighted aspects of the questionnaires that needed tweaking. Furthermore, colleagues and supervisors were also consulted on ways to improve questionnaire items to minimise cognitive overload. Hence, in light of this, the researcher acknowledges that the validity and reliability of these questionnaires maybe perceived as weak. Therefore, it must be emphasised here that these questionnaires were used merely for pragmatic reasons to collect any additional data for theme areas that needed further exploration after interviews had been conducted. This was the result of the direction of the research changing abruptly as a late stage of the research progress a discussed earlier in the thesis.

### ***Tick box questionnaire***

The tick box questionnaire contained particular items of interest to the researcher that required each three of the three ST's to provide tick box responses. The items included in this questionnaire were generated from key themes arising in other renowned studies previously conducted on student teachers general training experiences. Questionnaire items were predominantly extracted from two existing studies by McLay (2007) and Malderez et al (2007). The researcher felt that this would not only add validity to the questionnaire by developing existing themes into questionnaire items but would also determine if these theme items were also central to the training journeys of the three ST's in the present study. The researcher also endeavoured to use these theme areas in an innovative way to other studies by exploring the role they played in shaping each ST's identities as science teachers.

The items in this questionnaire (see Appendix F) explored their overall satisfaction with certain aspects of their HEI (for PGCE trainees), DRB (for the GTP trainee) and school training experiences. The design of this questionnaire ensured that it was quick and easy for the three ST's to complete and concurrently provided insights into key areas integral to the study. The questionnaire design incorporated three key sections endeavoured to explore whether:

- 1 prior expectations of their school experiences and whether these were met or not for certain aspects of their training by ticking either 'fully met', 'partially met' or 'not met' (see Appendix F).
- 2 particular aspects (chosen by researcher) of their school experiences and training provision offered in placement schools. They ticked option 'good enough' or 'not good enough' and had the opportunity to provide any comments if the wished to provide further insight into the response given.

- 3 the final section of the tick box questionnaire was set out the same as (2) above but focussed on each ST's training experiences in HEI/DRB and whether they felt training provision was good enough.

Thematic analysis was used to analyse all responses.

### *Identity questionnaire*

The identity questionnaire was an open response questionnaire which was specially devised in the latter stages of the study when the research focus changed direction (Appendix E). The questionnaire was designed to include two distinct parts. The first half was an open response questionnaire which aimed to elicit insights into factors shaping each STs' identities as science teachers. The items included in this section of the questionnaire were chosen on the basis that these were the key themes emerging from the literature review conducted on teacher identity within the context of ITT. Furthermore, Day & Kington's (2008) study was also integral in the process of generating the identity questionnaire items as some items were formulated by the researcher to gain deeper insights into STs' personal, professional and situated training experiences and how they may have shaped their identities as science teachers. Dominant themes arising from data collected in the present study were also key in the development of questionnaire items to enable the researcher to delve deeper into what each ST had previously voiced in interview(s) and questionnaire(s). The researcher felt they would provide rich data and elicit whether such theme areas were also pertinent to shaping each ST's identities as science teacher in the context of the present study. The second half of the questionnaire was tick box based and offered each ST the opportunity to provide additional comments if they wished to do so. The aim of this section was to explore each ST's general experiences of teaching difficult subject-specific science topic(s) in addition to other more general aspects of teaching pedagogy which were also found to be dominant themes in previous studies. The science topics included in the questionnaire were renowned for posing difficulties for STs' when delivering them to school children in an accessible way (as evident in the literature on science teacher education). The present study wanted to explore whether such difficulties impacted on each ST's confidence and how they felt about themselves, their teaching pedagogy and their evolving identities as science teachers.

Thematic analysis was used to analyse all responses.

### ***3.6.5 Justification for using semi-structured interviews***

Research interviews are often ‘construction sites for knowledge’ and an ‘interchange of views between two persons conversing about a theme of mutual interest’ (Kvale, 1996 p. 14). It ‘is a very flexible tool with a wide range of applications (Walliman, 2006 p. 91) and an effective way of exploring individuals’ perspectives on diverse situations in real everyday contexts (Bryman, 2008). They contain both ‘structured and unstructured sections with standardised and open-format questions (Walliman, 2006 p. 93). In the present study, it allowed me to ask new questions not on the interview schedule and provided in-depth insights by immersing myself into individual training worlds to construct meaning from their training experiences and to theorise these as identity development. The use of interviews aligned with my epistemological and ontological stance and enabled me to explore experiences unique to each ST (Bryman, 2012).

### ***3.6.6 ST interviews***

Interview schedules one, two and three (Appendices C, D, E) contained some of pre-determined research questions as used in Moses’s (2009) study. These were adapted for the purpose of this study with additional questions derived from responses given in half-termly questionnaires to address particular themes arising for each case study trainee (varied accordingly). These pre-determined interview questions were discussed with colleagues prior to conducting formal interviews to enhance interview reliability. We ensured that questions were clear, unambiguous or misleading (Cohen et al., 2011). Informed consent was granted at the beginning of the research process when confidentiality and anonymity was explained. Each ST was happy for interviews to be audio recorded for research purposes.

One to one semi-structured interviews were used to collect rich qualitative data to supplement data derived from other methods. Open response questions gave both interviewees and I greater flexibility to delve deeper into particular theme areas. Therefore, in some interviews, the schedules helped to keep on track and were sometimes used merely as a prompt to stimulate discussions. Three interviews were conducted with each ST case study which were conducted at three points during their training:

- **beginning of the course approximately October time:** - data was collected on STs’ motives for entering the teaching profession/training, reasons for opting for their chosen training pathways, prior expectations about their chosen course, academic backgrounds, prior experiences working with young people and previous career(s)/job(s).

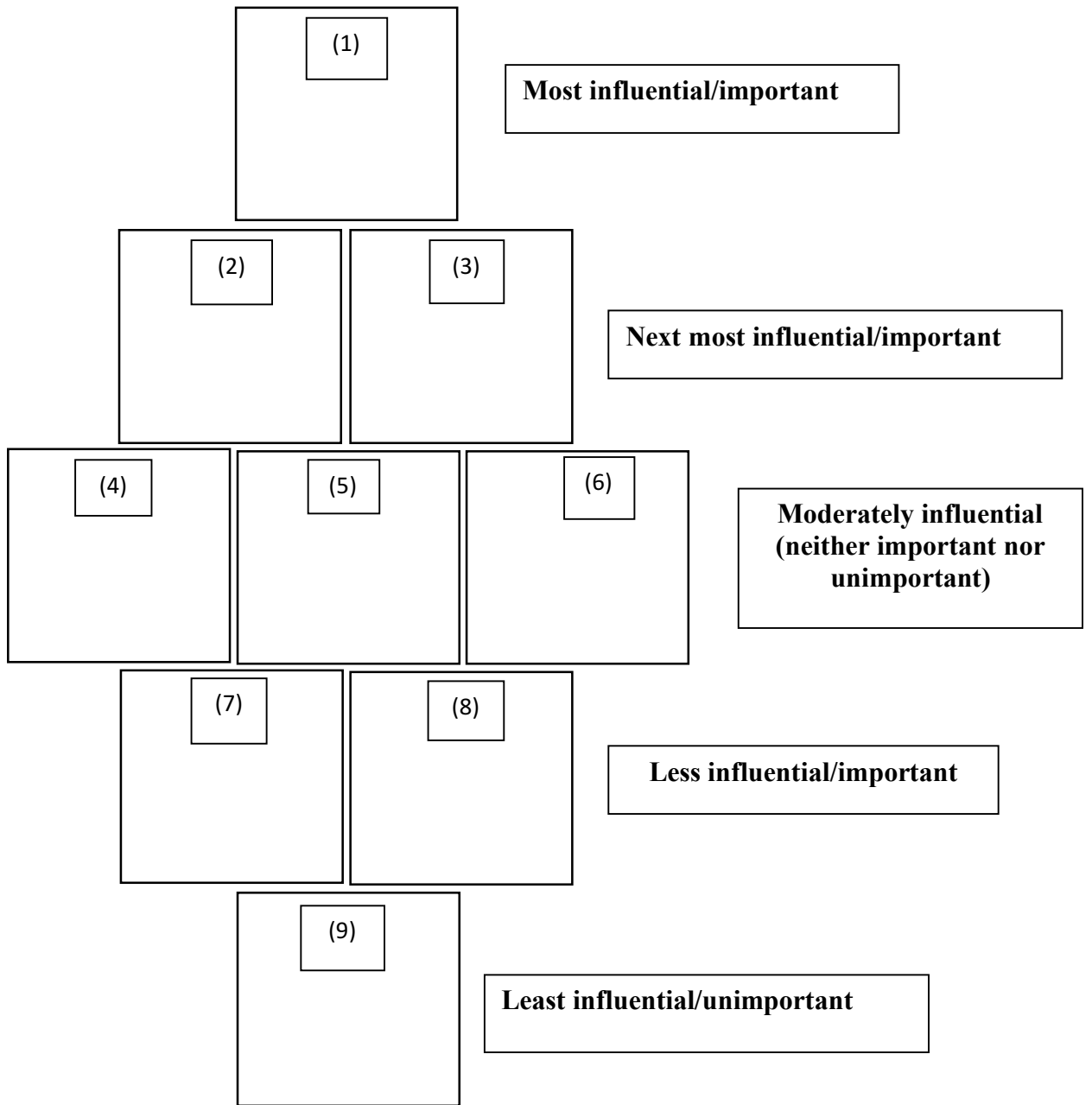
- **part-way through the course which took place approximately one week prior to the Easter break:** - data was collected on the level of support they received from HEI/DRB and in school, whether expectations were being met, highs and lows and any other concerns expressed about their training and overall perceived progress.
- **end of the course in July:** - data collected was based on STs' retrospective reflections on their experiences over the duration of their training courses. Questions were geared towards exploring the highs and lows that were experienced. This gave some indication about whether their prior expectations of their courses were met or not (e.g. areas of training preparation and course content).

### ***3.6.7 Gathering of documentation***

The analysis of educational documents is recognised to be invaluable approach to gathering other forms of data to support existing research data and subsequent findings (Johnson and Pearson, 1984). In this study, educational documents, course documentation and evaluative documentation such as school Ofsted reports were consulted.

### ***3.6.8 Diamond ranking***

Diamond ranking is a fairly new research tool used in educational research. Traditionally it was used to encourage talk on particular theme topics which involved individuals ranking nine descriptors in order of priority or preference depending on the criteria set for particular activities. Figure 8 (p. 56) illustrates diagrammatically how diamond ranking descriptors are normally positioned.



**Figure 8** Diamond ranking and the organisation of different descriptors (adapted from Clarke, 2012)

In this study, the nine standard theme areas were explored throughout the research process which were as follows:

- support and feedback given after lesson observations
- support from DRB/PGCE course leaders and tutors
- support from school-based professional mentor
- general support from school-based subject mentor
- support with developing subject-knowledge
- support with classroom/behaviour management
- support with lesson planning
- support with science practical experiments
- opportunity to observe other experienced teachers

Case trainees were invited to complete this exercise as they wished either during each interview or at the end. Stacey had decided to present statements slightly different to the normal traditional way by utilising the 1-3-5 combination to present her responses (Figure 8, p. 56). Overall, the tool was utilised to explore which of these key areas were most influential right the way down to least influential in relation to how key situated experiences shaped STs' identities as science teachers. Each Case trainee was invited to talk through their reasons for ranking responses in a particular way. Photographs were taken of the final diamond ranking order to capture each ST's responses and were used as visual data for qualitative analysis.

### **3.7 Consideration of methodological issues**

#### **3.7.1 Reliability & validity**

It is integral that researchers give consideration to issues relating to reliability and validity. Both are pertinent concepts in determining the overall quality of qualitative and quantitative research (Bryman, 2008). In qualitative research, the ‘suitability’ of the term has previously been contested by some (e.g. Winter, 2000; Stenbacka, 2001 and Golafshani, 2003). Some researchers prefer to use alternative terms for reliability for instance, Lincoln and Guba (1985 cited in Cohen et al., 2007 p. 148) prefer to use ‘credibility, neutrality, conformability, dependability, consistency, applicability, trustworthiness and transferability’. Internal validity can be achieved by researchers providing evidence that a true reflection of events that STs’ actually experienced and voiced.

To increase the reliability and validity of findings in this study, efforts were made to ensure that:

- the data collection process was conducted impartially and concisely to minimise bias and error (e.g. STs’ body language and environmental constraints where interviews were conducted were noted (e.g. in school contexts where some interviews had to take place in the staff room).
- case study data provided a true reflection of STs’ responses in interviews, questionnaires and diamond ranking. This was achieved by each ST confirming at the end of the research process that they were happy that all transcripts did truly reflect what had been voiced in interviews and questionnaires.
- multiple data collection methods were used to achieve triangulation to strengthen the validity of the research data derived. Efforts were made to ensure internal reliability was of a high standard



External validity refers to whether a study's findings 'can be generalised beyond the specific research context in which it was conducted' (Bryman, 2008). In this study, external validity could not be fully achieved because the nature of research findings were too unique to each individual ST. Nevertheless, every effort was made to ensure that the research context and data collection methods were described accurately. It is hoped this information would prove imperative for other researchers who may wish to evaluate for themselves whether research findings here are generalizable to other contexts. The concept of external reliability 'involves members of the research community who do not participate in the project reaching similar analyses' (Hartas, 2010 p. 302) and results. Of course educational contexts cannot be frozen to mirror the exact conditions in original studies. In relation to Hartas's (2010) study, the researchers could replicate the study's research design and conducted similar analyses of data gathered from other ITT contexts to evaluate whether or not they were in agreement with conclusions drawn in the present study.

### **3.7.2            *Triangulation***

'Triangular techniques in the social sciences attempt to map out, or explain more fully, the richness and complexity of human behaviour by studying it from more than one standpoint and, in so doing, by making use of both quantitative and qualitative data' (Cohen, *et al*, 2007 p. 141). Thus, adopting a case study approach in the present study proved invaluable as it allowed for triangulation by using multiple data collection tools and two key theoretical theories for the data analysis. This research design was therefore a 'powerful way of demonstrating concurrent validity, particularly in qualitative research' (Campbell and Fiske, 1959 cited in Cohen, *et al*, 2007 p. 141).

### **3.7.3    *Ethical considerations***

The present study took careful steps in ensuring ethical principles were considered throughout the research process by abiding to the rules and regulations set out in the British Psychological Society's code of human research ethics (2010). The following ethical principles were considered.

### **3.7.4 *Informed consent***

STs' wishing to partake in the study were required to complete and return formal written consent forms (Appendix I) which were circulated via email. Details about the study aims were communicated clearly on information sheet (Appendix J). Potential research participants were made aware in advance that interviews would be audio recorded. Furthermore, all gave consent to complete all questionnaires within the study. All participants were happy for research findings to be disseminated in the future. Approval from ITT course personnel was also requested to ensure they too were happy for STs' to take part. The right to withdraw from the research at any time was also clearly communicated.

### **3.7.5 *Confidentiality, anonymity & non-traceability***

All data (e.g. audio tapes/interview recordings and associated documentation) were treated with the strictest confidentiality and data was securely stored in compliance with the Data Protection Act (1998) and in accordance with the guidelines set out by the University's Ethics Committee. All interviews were audio recorded and fully transcribed anonymously at a later date. Alternative names were allocated to each ST and minimal details about schools were included to ensure anonymity so that each ST's identities could not be traced back to their schools through what had been said whilst training at particular their HEI/DRB and school contexts.

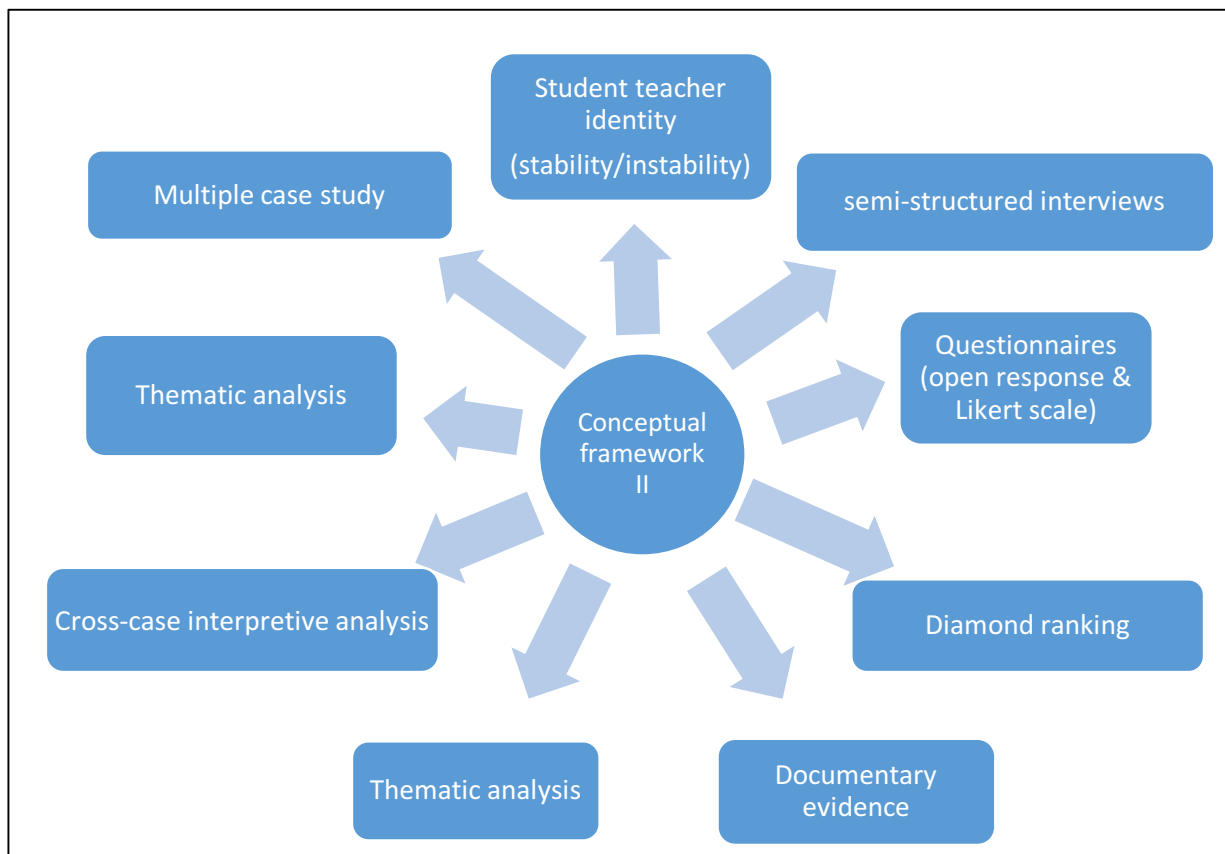
### **3.7.6 *Influence of my role as the researcher***

It is imperative that I as the researcher highlight my role in the research and in what way my presence could have influenced the research process in addition to my own personal experiences and biases may shape my understanding. Having had trained through the GTP route myself, I had pre-existing viewpoints of the highs and lows I experienced in my own training journey. Therefore, I was able to empathise with some of the experiences particular ST's encountered. Furthermore, I was able to recognise the highs and lows they were likely to face and accordingly ask questions they may not have considered. This somewhat made case trainees feel at ease when they were voicing what highs and lows they were experiencing whilst training. But equally, my presence as the researcher may have influenced how STs' responded to research questions. It could be argued that beneath the surface, STs' may have feared that by being honest about their training experiences, it may get back to their mentors and affect their assessment marks regardless of being reassured anonymity and confidentiality. But every effort was made to minimise the researchers input by providing an informal atmosphere that allowed them to reflect freely and openly about their experiences. Hence, as the

researcher, I remained impartial and kept my distance by not sharing my own thoughts and assumptions.

### 3.8 Conclusion

To conclude, this chapter explored the study's research methodology. Coverage was given to the chosen research design, selection of case trainees and any methodological issues that were considered and addressed. Moreover, insights were given into the data collection tools employed and ways the study's reliability and validity was were considered. Figure 9 below presents the study's stage two conceptual framework which captures the research methodology and informs the data analysis process in Chapter 4.



**Figure 9** Conceptual framework II: qualitative multi-method research design

## Chapter 4. Findings & Analysis

This chapter is presented in four sections:

**Section 4.1:** introduces the chapter, describes the process of data analysis, analysis tools used and provides an overview of the structure of each case study.

**Section 4.2:** presents detailed evidence from George's case study.

**Section 4.3:** presents detailed evidence from Tracey's case study.

**Section 4.4:** presents detailed evidence from Stacey's case study.

## **4.1 Introduction**

The key study findings from each of the three case studies are presented in this chapter in their own dedicated sections.

Data analysis involves a ‘process of bringing together order, structure and meaning to the mass of data collected’ (Marshall and Rossman, 1995 p. 11). The present study utilised qualitative multi-method approach to gathering data. Data was analysed in Nvivo by allocating codes to themes which came through across case studies (Bazeley, 2007). The very basic Likert type quantitative data was analysed manually and through use of bar charts and played a supplementary role to the study’s qualitative findings. The process of data analysis was only terminated once no more themes appeared to emerge from the data. Data was discussed with fellow research colleagues and supervisors and advice was given on considering how to condense the data. The study used a case study research design with a convenience sample and therefore the study acknowledges that generalizability cannot be assumed. Instead, the study was dedicated to offering the reader with rich insights which could be compared to other contexts and situation.

### ***4.1.1 Data analysis procedure***

The qualitative data analysis process moved through the following four stages:

Stage one involved identifying themes and categorising qualitative data from interviews, open questionnaire responses and diamond ranking responses. The audio recorded interviews were carefully transcribed. Some of the study’s themes that had been predetermined were analysed whilst adopting an open frame of mind for new themes that emerged. Hence, study themes were continuously informed by existing literature, the theoretical frameworks that were utilised and by new themes emerging from the data. Transcripts from each case study were read several times in a preliminary exploration of data where I manually colour coded key themes. Through this process, data became increasingly familiar and irrelevant data was discarded. The direct quotations used in this section were selected for their unique contribution in providing rich data to the endeavour to better understand the research findings.

Stage two of the analytic framework involved mapping refined data on STs’ key personal, professional and situated experiences (positive and less positive) onto Day and Kington’s identity model. Please note, as mentioned previously, there was inevitable overlapping in the findings reported

for the three identity dimensions. Here, the researcher used their best judgment and signified this overlapping in the summary analysis tables that were produced.

Stage three extended the analysis of the situated identity and the experiences which were judged to fit into this dimension by adapting Valsiner's extended zone theory, this involved the careful mapping of STs' experiences onto the ZFM and ZPA offered in the socially complex contexts of HEI/DRB and school learning communities. These theories fitted well in the study, bringing individual and collective sides of learning together. Previous studies similarly apply social theory perspectives and analytic frameworks to theorise teacher learning and development in novice teachers particularly in mathematics education (e.g. Ensor, 2001; Lerman, 2001; Peressini et al, 2004; Goos, 2005; Blanton, Westbrook and Carter, 2005 & 2001; Hussain, Monaghan and Threlfall, 2011 and Bennison and Goos, 2013).

Stage four made attentive inferences from STs' voiced experiences to determine what interactions existed between the three identity dimensions and which identity scenario each ST was facing. This gave insights into the level of stability or instability STs' were experiencing in relation to their emerging teacher identities. Each of Day and Kington's (2008) identity dimensions were adapted and understood and explored in the present study as the following:

- **Professional dimension of identity:** explored relevant reasons underpinning entry into the teaching profession, the type of teacher they aspired to be, professional expectations about their training, professional aspirations for the future, workloads, feelings about professional QTS standards and overall professional support offered by PMs.
- **Personal dimension of identity:** this was explored in two ways (1) prior experiences student-teachers brought to their training (relevant academic background, prior experiences working with young people, own schooling experiences) and (2) unfolding training experiences which impacted on their personal lives.
- **Situated or socially located dimension of identity:** explored relevant pedagogical training experiences in the training contexts of HEI/DRB and school placements (e.g. school socioeconomic context, the ZFM/ZPA student-teachers experienced in terms of support, course content and training preparation received).

Please see Section 4.1.2 (p. 68) for further details of the data analysis steps taken and how these will be presented within the thesis. The section below briefly provides insights into the other theories that were considered for data analysis.

### ***Other alternative theories considered as data analysis tools***

Whilst conducting the research, two other alternative theories were also considered as potential analytical tools to be used in the study and these were as follows:

- Communities of Practice Theory (CoPT), which encompassed the theories of Situated Learning and Legitimate Peripheral Participation (LPP)
- Boundary Crossing/Zone theory

Firstly, the definitions for each theory is presented below followed by the reasons why these theories were not considered in depth and why the final choices to use Day & Kington's (2008) teacher identity model and Valsiner's (1997) extended zone theory as the studies combined analytical model.

The concept of Communities of Practice theory revolves around: -

*'a set of relations among persons, activity, and the world, over time and in relation with other tangential and overlapping communities of practice'*  
(Lave & Wenger, 1991 p. 98).

The concept of Legitimate Peripheral Participation (LPP): -

*'provides a way to speak about the relations between newcomers and old-timers, and about activities, identities, artefacts, and communities of knowledge & practice. It's the process by which newcomers become included in a community of practice'*  
(Lave & Wenger, 1991 p. 29).

Therefore, in the context of ITE CoPT and LPP as a combined theory could be perceived as:

*'Trainee teachers who successfully collaborate with teachers in their practicum placement schools tend to enjoy "legitimate peripheral participation", a key element of creating a community of practice among teachers and novices (Wenger, 1998 in Mtika, 2011, p. 553).*

Although the above theories of CoPT and LPP clearly applied to the present study, the researcher wanted to ensure that focus was not taken away from the study's key aim which was to solely represent the student voice and their experiences as they perceived them to be in the midst of their training journeys. It would be difficult for the researcher to determine if whether a CoP existed in the HEI/DRB and schools without a fuller insight in person of all the factors that made up the community. What can be said from the findings emerging from the present study is that each ST offered a unique account of their experiences with some feeling part of the team whilst others felt they were not integrated into the communities of practice particularly within their schools. The notion of boundary crossing was also considered as a theory relevant to the present study and appeared to link in well with the notion of boundary crossing between the communities of practice found in HEI/DRB and in

schools. Lofthouse & Wright (2012 p. 89) describe the concept of boundary crossing in the context of ITE as: -

*'Student teachers & their mentors engaged in a process of boundary crossing between the boundaries of university and school'*

In some cases, it has been widely documented that student teachers' can 'often experience 'reality shock' (Veenman, 1984) in light of having to juggle the 'complex and diverse demands, knowledge bases and contexts for teaching' (Martinez, 2003, p. 8). Preliminary data analysis of emerging research findings did find that boundary crossing theory was useful in understanding each ST's identity development as science teachers particularly when transitioning from prior career(s) to becoming a student teacher to finally a fully qualified science teacher. In particular, the present study found that the transition zones when navigating between HEI/DRB to school contexts were considered to be rich zones where the development of teacher identities as science teacher's was most profound. In the present study, it was in these boundary zones where each ST experienced 'praxis shock', the readjusting of personal and professional identities and where most tensions were experienced for instance, in terms of the support networks available particularly in school contexts. This subsequently impacted on the situated learning that each ST experienced. Please see Figure 10 (p. 67) below for the initial analytical framework that was devised as part of the preliminary data analysis planning stage.

In light of these findings, the researcher felt it was appropriate for the study to focus on each ST's personal and professional training experiences situated in the training contexts they were exposed to. There was already clear evidence that boundary crossing did play a positive role in shaping teacher identities. However, what was unknown was the stability and/or instability each ST's teacher identities experienced as a consequence of the unfolding experiences encountered. Furthermore, the study aimed to explore the ZFM and ZPA each training context offered and to give each ST the power to voice how they rated the ZFM's and ZPA's that their unique schools offered and how these influenced how they felt about their evolving identities as science teachers'. Hence, the researcher made the final decision to only use Day & Kington's (2008) identity model in conjunction with Valsiner's ZFM and ZPA. It was hoped that the latter theory would innovatively help clarify and provide a bigger picture of exactly what kind of ZFM's and ZPA's were offered between the boundary zones of HEI/DRB and school contexts. What made this study so powerful was that findings were raw and real from the mouths of those important individuals at the forefront of ITT programmes: the student teachers' themselves.



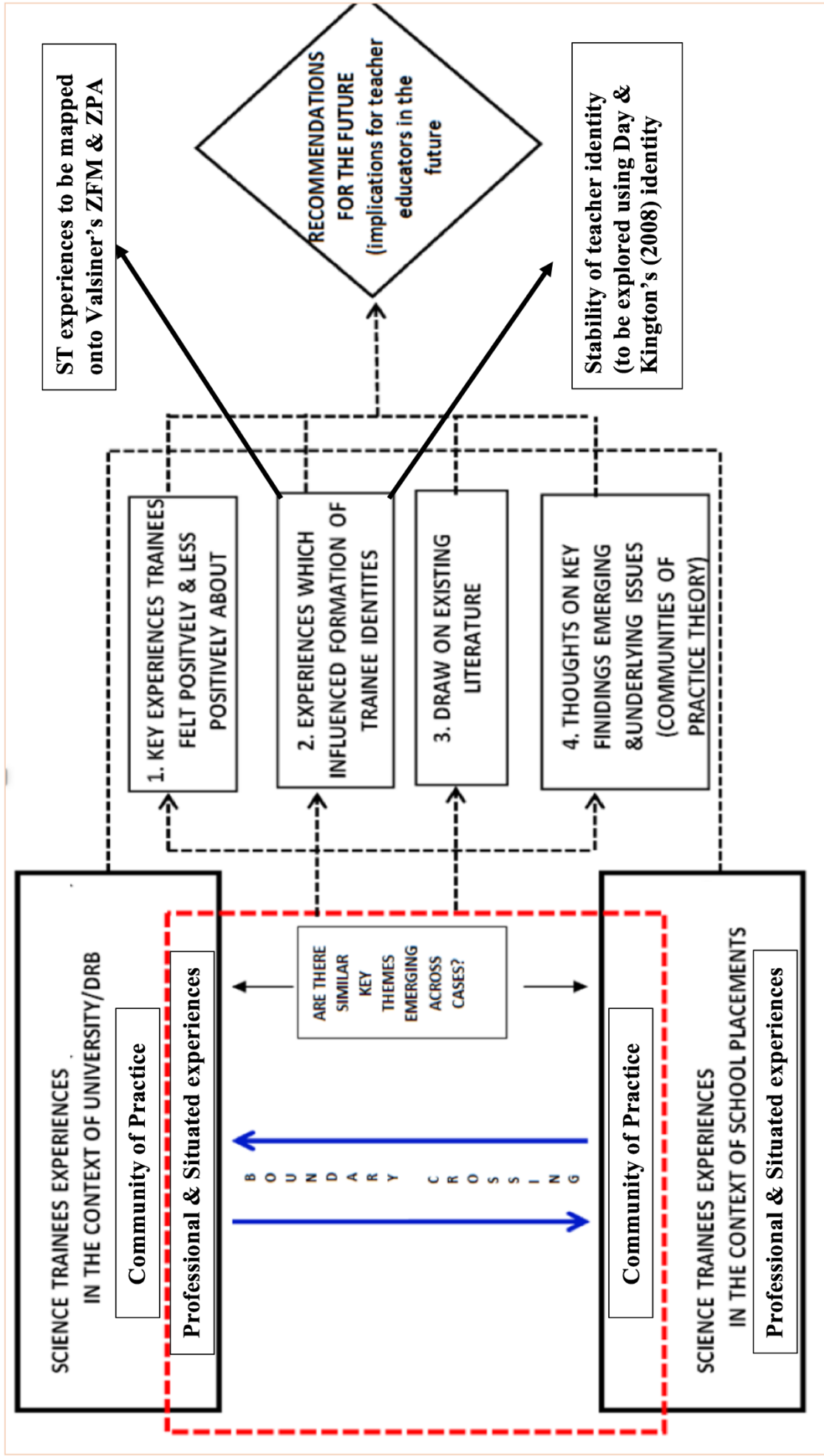
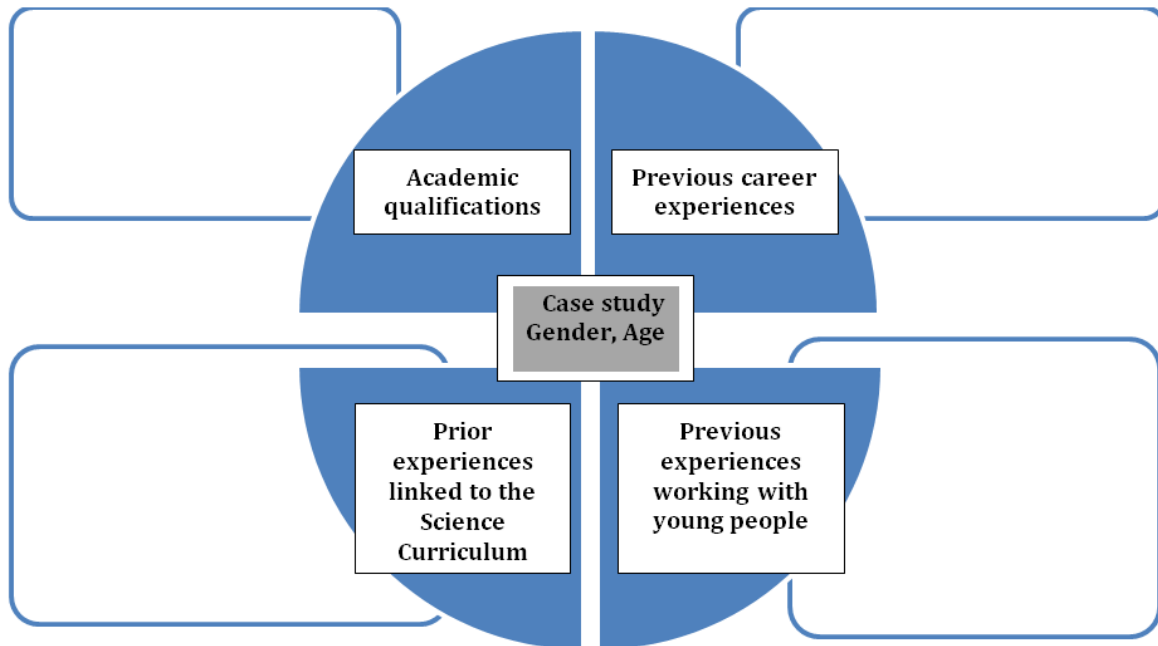


Figure 10 A chart to show the study's initial integrated analytical framework incorporating the CoPT and Boundary crossing theories that was considered. These theories were not chosen as the final data analysis tools and only Day & Kington's (2008) identity model & Valsiner's ZFM & ZPA theories were used to analyse the data emerging from each ST's key experiences.

### 4.1.2 General structure of each case study

This section summarises how each case study will be presented within the thesis.

1. **Insights into previous experiences:** each case study introduces the ST and provides insights into four areas of the STs’ prior experiences as shown below. This information was included to explore STs’ prior experiences and learning and how these contributed to their training experiences and subsequent identity development as science teachers.



2. **School socioeconomic context:** a brief snapshot insight is given into the context & Ofsted report of each STs’ placement school to form an idea of the type of school they were training in (see exemplar table below). This information will be used later in the data analysis to establish whether school socioeconomic background influenced each STs’ training experiences and subsequent identity development as science teachers. Some key information about each school has not been included to ensure anonymity.

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour

3. **Steps taken in producing the analysis summary sheets:** each of the ST's positive and less positive training experiences which emerged from their interviews, diamond ranking exercises and questionnaire responses were all analysed to extract key themes which could then be summarised and housed in one analytical findings table. Three analysis summary table was generated for each ST, each one summarising key experiences encountered during their time in HEI/DRB and each two of their school placements. The purpose of doing this was to draw findings together into one location to make the analytical process easier. The researcher with the support from supervisors then carefully judged which experiences best fitted into each of the three identity dimensions which appeared to shape each ST's identity as science teachers (see below). These were then mapped onto the table containing the following three separate identity dimensions central to the study as adapted from Day & Kington's (2008) study:

- Personal dimension of identity: to reiterate, this dimension related to each ST's prior life experiences and personal experiences which may have influenced their training
- Professional dimension of identity: to reiterate, this dimension related to each ST's professional experiences acquired either previous or whilst on their training journeys.
- Situated dimension of identity: to reiterate, this dimension related to ST experiences encountered in the contexts of their HEI (for the two PGCE's), DRB (for the GTP) and school placements

In instances where particular experiences were judged to inevitably overlap between identity dimensions, these were presented in grey boxes to signify this overlapping between two identity dimensions. An example to illustrate this is shown by the grey box top right of the table which overlaps two identity dimension columns. If in the scenario experiences were considered to be both positive and negative in terms of shaping each ST's identities as science teachers, these too were presented in a grey box within each dimension column (as shown at the bottom of table). By mapping these ST experiences onto Day & Kington's (2008) identity model, it enabled the researcher to deduce to their best judgement which overall identity scenario each ST experienced whilst training (see (5) below).

- **Mapping ST experiences onto Valsiner's extended ZFM & ZPA:** The analysis summary tables also included a column to summarise and indicate which experiences and training provision voiced by each ST that the researcher felt represented an ZFM and/or ZPA (see Section 2.6 (p. 29) for detailed discussion on these zones). **Please note that only professional**

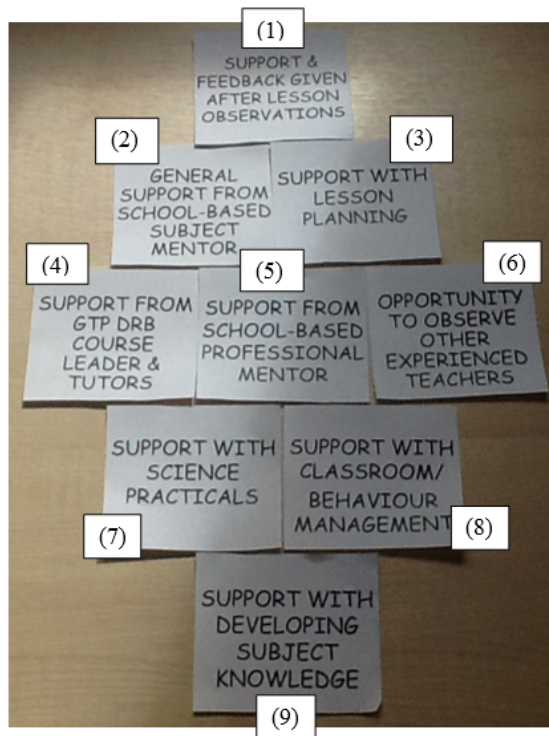
**and situated experiences were mapped onto Valsiner's ZFM and/or ZPA. This is because the researcher wished to only focus on each ST's situated and professional training experiences encountered in their HEI/DRB and school contexts.** If the researcher was undecided, there ZFM/ZPA column was left blank to signify the uncertainty. The present study predominantly explored the theory of ZFM and ZPA in the situated contexts of HEI, DRB and in schools. Please note only pertinent experiences are mapped on to these zones and not all were mapped as some were judged to be irrelevant to the study. Valsiner's extended zone theory on ZFM and ZPA informed the process of data analysis by allowing the researcher to identify which ST experiences regardless of them being positive or negative (whether those which fall into the ZFM and/or ZPA) could be considered as pertinent to shaping ST's identities as science teachers. These findings in turn may then help guide those delivering ITT in training schools on providing training provision that offers a ZFM and ZPA which is tailored to meet each individuals needs.

- **Diamond ranking responses:** these were also cross-referenced from the snapshot pictures and on to the analysis summary table. These responses are clearly abbreviated to **DR**. For example, **DR (1)** denotes the 'Diamond Ranking' and the response number (1-9). It is hoped this will enable the reader to examine the table in conjunction to the responses gathered from the diamond ranking exercises as captured in the pictures if needed. Key themes from questionnaires were merged in with interview responses and also included in table and cross-referenced into the analysis tables sometimes next to the diamond ranking reponse given in particular interviews e.g. **Interview 1: DR (6)**. Indication of which interview the response came from was only included where similar responses was identified in other interviews too or for example, where Interview 1 and 3 both captured the STs' response for their experiences in a particular school placement.

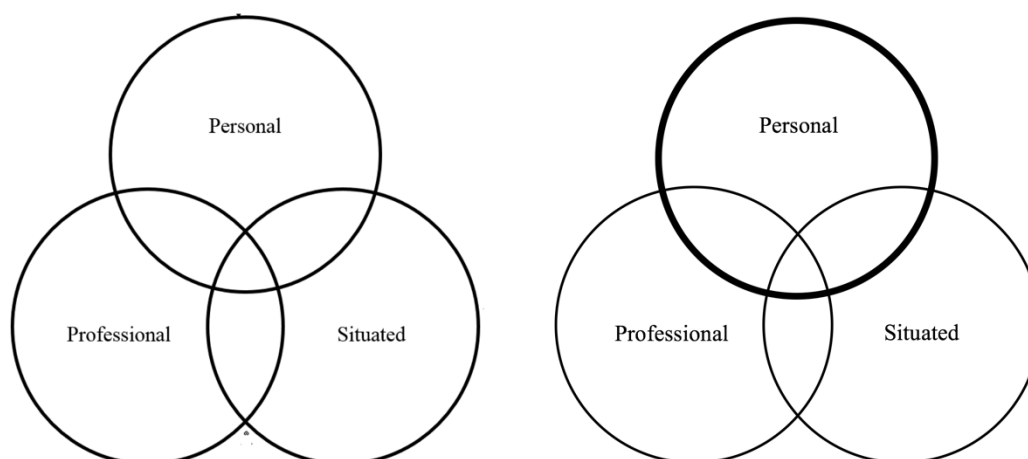
To conclude, the researcher felt that sing this analytical tool provided a holistic approach to summarise all key findings in one place including those not reported in the main body of each case study.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED IDENTITY DEVELOPMENT	VALSINER ZONE
Personal				
Professional				
Situated	MIXTURE OF BOTH POSITIVE & LESS POSITIVE EXPERIENCES			

4. **Photographs of completed diamond ranking exercise(s):** these were taken to capture the responses given by each ST at the end of each of the three interviews they completed and an exemplar picture is shown below. Diamond ranking was used to facilitate talk in interviews on the nine focus areas. It was an effective tool which allowed me to gather, organize and scrutinize each ST's perceptions about their training experiences. All diamond ranking responses are numbered 1-9 and were cross-referenced into the analysis summary tables.



5. **Identity scenario experienced:** each ST's personal, professional and situated experiences were analysed once mapped on to the three dimensions of identity within the analysis summary tables generated. A glance at each analysis table instantly highlighted which identity dimension(s) were most dominant which subsequently revealed the overall level of stability and/or instability STs' identities experienced whilst training to become science teachers. This will then be presented diagrammatically in form of a Venn-like diagram as shown in the generic example below on the left. If a ST's experiences were heavily mapped onto one or more identity dimension, this was signified in the diagram with larger circle(s) with a thicker outline. This highlighted which identity dimension(s) exercised the most dominance and hence allowed the researcher to deduce from their best judgement which identity scenario out the four each ST experienced as a whole (please refer back to Section 2.3.2 (p. 16) for detailed discussions on Day & Kington's (2008) which is the theory heavily used in the present study). For a generic example, the diagram on the right below represents an identity scenario where experiences were mapped mostly in the personal dimension of identity and hence this is considered to be the most dominant identity dimension. Therefore, this would represent 'Scenario 2: one dominant dimension' according to Day & Kington's (2008) identity model. Therefore, Day & Kington's (2008) theoretical model could be used in the present study to inform the data analysis by providing the researcher insights into which experiences (whether positive or negative personal, professional and/or situated) play a pertinent role in (a) shaping STs' identities as science teachers, (b) how overall findings from identity scenario diagrams could be used to inform ITT providers of key experiences STs' voice and how addressing these in the future may help provide stability in STs' evolving identities as science teachers, (c) how providing a good ZFM and ZPA (e.g. the support networks in place and effective resources for training provision) may in turn help future STs' feel more positive about their identities. The conclusions from the study will be presented in Chapters 5 and 6.



## 4.2 George's Case Study: an introduction

The case of George (Figure 11) exemplifies a ST who initially expressed uncertainty about which career path to take in his life. He had 'thought on and off about' entering the teaching profession and was a decision that 'evolved' over time:

*'It [teaching] wasn't a direct aim but...I thought I'd get some experience of the real world if you like and I felt the time was right to come back into it...I wouldn't have thought in a million years of becoming a teacher... this is something which evolved naturally in the years after'.*

He depicted a calm persona and came across as quietly confident from the outset. He was hard working, had great self-belief and his outlook on life resembled the metaphor of a glass always being half full. As a student himself, he was a 'very quiet' individual who felt he had under-performed academically in his A' levels. He 'went to university with 3 D's' but made the conscious decision to switch his work ethic which subsequently earned him a first class degree. He 'pushed himself' and believed his success was because of sheer hard work and determination he poured into his degree. He described feeling 'clever enough' to get through his PGCE year and planned to adopt a similar work ethic to the context of teaching. Figure, presents some basic descriptive information about George.

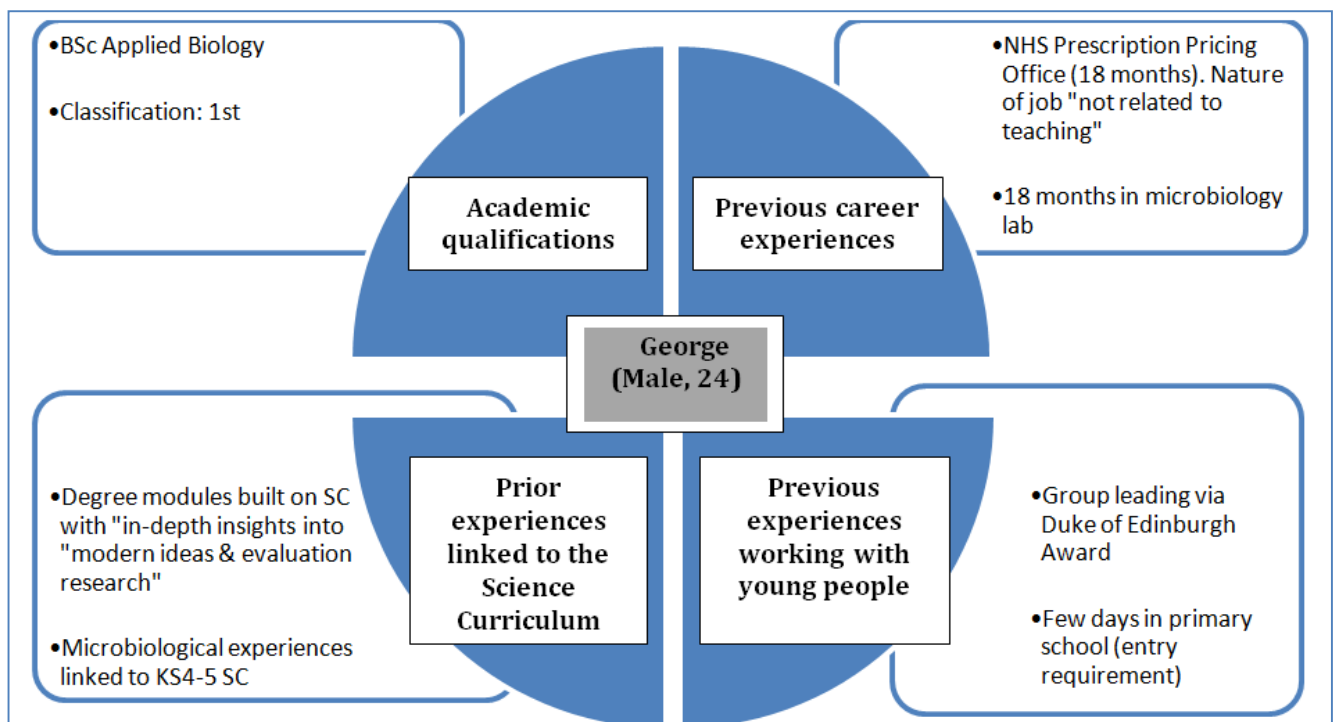


Figure 11 Brief insights into George's life experiences prior to starting the Science PGCE

#### **4.2.1 George's own childhood experiences of science & the teacher he aspired to be**

In retrospect, as a school pupil himself, he remembered academically performing 'better' in English but 'liked' science lessons 'a lot more' with it being an 'interesting' subject. He did find science 'hard' to grasp and remembered 'really struggling with some aspects' and realising he 'probably wasn't as good at it' as he initially thought. Nevertheless, his love for science made it a 'natural progression' for him in wanting to pursue the subject at university level.

He often dreamt about being the perfect teacher who was 'entertaining, harsh but fair' and who 'delivered good results'. It was clear during interviews that he wanted to evolve into a science teacher with the following qualities:

*The ability to pose questions which allow students to think logically. The ability to relate science to everyday life. The ability to make the duller aspects of it interesting and engaging'.*

#### **4.2.2 Reasons for choosing the PGCE route**

George's intention was always to embark on his training via the PGCE route with having little desire 'pursue' alternative routes. He felt confident with his choice with it being 'the most popular route' which 'worked' well in training teachers:

*'If you wanna go and train as a teacher you do a PGCE... I know people who have done it [PGCE course] and they've done well in it..'*

This suggests his decision was potentially influenced by feedback dispensed by former PGCE students regarding their own experiences and who had enjoyed the university-school balance (theoretical and practical components) the course offered. This aspect appealed to George also as he disliked 'the idea of being in one school the whole time' and preferred to be 'moved around' to gain a 'better view of the whole profession'. The financial aspects of doing the PGCE was also considered by apply sooner (academic year 2011-2012) rather than later; a decision instigated by the Government's increase in student fees and proposed changes to the student eligibility criteria for bursaries from September 2012 onwards:

*'I knew how much more it would cost us if I did it a year later which probably also influences why I did it this year instead of next year...and I knew I'd get a bit of bursary as well'.*



#### ***4.2.3 Key aspects of HEI training that George felt most positively about***

George highlighted one key area he felt positively about which was the superb personal and professional support he received from HEI personnel (e.g PGCE course leader, assigned tutors).

#### ***Personal & professional support from HEI tutors & fellow STs' and relationships formed***

Before George began his training, he had heard negative feedback from former PGCE students about the lack of support they had received whilst training. Hence, he had entered his own training with low expectations:

*'I came in expecting I had to work really hard and...on me own but I have had lots of support and they've been great'.*

Fortunately, his experience was more positive and expectations were positively 'exceeded'. He spoke highly of the support networks in place:

*'I...never would have dreamt of [getting] all the support we've [had] from our university mentors, I think they have put in a phenomenon amount of out of hours work for us'.*

This support was imperative during his DP when faced with challenging issues (e.g. classroom management and lack of support from mentors and science department) that disrupted his training. He relayed his struggles to the HEI course leader who immediately 'pulled' him 'out' of the school and 'cross fed' him to a new school. The concerns he raised about his training needs not being met at the school were acted upon promptly by the HEI course leader. Support from fellow peers and the relationships he established were also key to his teacher identity development. Training time in HEI was invaluable and offered ample opportunities to exchange professional dialogue, reflect on and share experiences collaboratively with tutors and peers. Furthermore, the university learning environment had a positive air about it which made the HEI training experience relaxing and an enjoyable one for George.

#### ***4.2.4 Key aspects of HEI training that George felt less positively about***

George drew attention to five experiences he felt less positively about which most notably related to the following areas in no particular order.

## ***Lesson planning***

A low point for George had related to ongoing struggles he encountered with lesson planning in school which was a direct consequence of the lack of guidance received in HEI prior to his DP commencing. The session scheduled too late in the timetable and therefore entered his DP feeling ill-prepared:

*'I think we could have had a bit more support with lesson planning earlier on because I think it comes more naturally to some people than it does to others...I just spent so many hours...late night hours just staring at a bit of paper trying to think of something to do and...I am having a lot of difficulty understanding how to differentiate lessons. I think if we'd had maybe a bit more structure earlier on...it might have helped'.*

*'the weak point was...bridging the gap between your subject knowledge and planning and teaching that subject knowledge...I think it wasn't always...supported...I just think the stuff that was put in place perhaps could have been with a bit more emphasis on planning'.*

He expressed how further preparation was needed with (e.g. via workshops):

- Block planning
- Planning a sequence of lessons
- Differentiating science lesson plans to meet all learners needs
- Bridging the gap between the trainee's subject knowledge and planning-teaching it

## ***Classroom management***

Concerns were also raised about ongoing issues with managing student behaviour and he expressed dissatisfaction with the timing and relevance of content covered in sessions:

*'I know the best way to learn is to go out and do it [behavioural management], but...we had one maybe two lectures on behavioural management and I didn't know what they could do to help...when we started uni at the start, I think we could have been given a bit more advice'.*

Although he felt ill-prepared and his teaching practice was affected, he did speak more positively about the 'phenomenal' one-to-one support he received from his HEI course leader and tutors when actively seeking advice.

## ***Subject knowledge***

George was unaware of subject enhancement courses available to him prior to starting his training at interview stage. Instead, he used 'revision guides' to conduct self-directed study to improve his general SK in science. He described physics as being an 'unknown' terrain for him having not 'done physics since leaving school'. He described his subject knowledge in chemistry as 'terrible' and

particularly identified this area as a ‘low point’ in his DP. He would have benefited from attending a subject enhancement courses prior to starting his training but had missed out because he was not made aware that these were running. He did rate HEI subject knowledge enhancement sessions ‘good’, but felt they were ‘not necessarily tailored’ to meeting his individual training needs. This was disappointing for him because he was already confident with the content that was delivered which he felt was a wasted opportunity for him. Nevertheless, he fully appreciated the HEI’s limitations (e.g. time constraints) in covering everything and did feel that the ‘subject knowledge within the curriculum’ was ‘pretty well done’. A major ‘weak point’ highlighted related to the lack of Pedagogical Content Knowledge (PCK) sessions which explored ‘how to teach’ effectively and struggled with ‘bridging the gap between subject knowledge and planning and teaching that subject knowledge’. He referred to the topic of Light as an illustrative example, describing how he fully understood the content but struggled to teach the knowledge in an accessible way to students.

### ***Evidencing Teacher Standards***

The course structure was designed to focus on QTS standards predominantly in Terms 2 and 3, with Term 1 devoted to STs’ settling in and getting to grips with the world of teaching. However, George would have liked more ‘explicit’ guidance and structure on evidencing QTS standards earlier on though fully appreciated the logic behind covering the topic later in their training. More examples on what constituted good evidence were needed coupled with ‘a bit more time set aside to talk about’ QTS standards in general. He suggested setting up tutorials where STs’ could have particular standards as a focal point for discussions which would effectively create a deadline to collect specific evidence in time to ‘come back and discuss progress’ made and compare evidence.

### ***Assignments***

The assignments he was required to do were ‘not really relevant’ to his everyday teaching practice. The timing when particular assignments were issued (e.g. PLC) proved problematic (‘wrong mid-way through the term’) with it clashing with his teaching. He ‘didn’t have time to do it [assignments] properly’ which on ‘lessons and the PLC assignment suffered’. He suggested how school time could have been used ‘as data collection time’ with ‘time at the end to write it up’. The poster he was required to produce in conjunction to the PLC assignment was a repetitive task where only ‘one or the other’ was required. Overall, key findings generated from George’s case study data from HEI experiences are summarised in Table 5 (p. 78) which are self-explanatory in terms of key messages yielded.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE
Personal	<ul style="list-style-type: none"> <li>• <b>Interview 1:</b> Overall personal expectations about his training were exceeded</li> <li>• <b>Interview 1:</b> Skills/experience acquired from undergraduate degree contributed towards TI development during training</li> <li>• <b>Interview 1 (DR 1 &amp; 2):</b> Professional support from HEI tutors &amp; other staff was 'great' &amp; 'exceeded expectations'</li> <li>• <b>Interview 1:</b> Many opportunities to exchange professional dialogue with fellow peers &amp; staff</li> </ul>	ZFM	<p><b>Interview 1:</b> As a child, George did not have a teacher who inspired him</p> <ul style="list-style-type: none"> <li>• <b>Interview 1:</b> He felt his own personal learning experiences did not 'yield much in the way of' what he learnt during his ITT year</li> <li>• <b>Interview 1:</b> Previous professional career experiences did not appear to influence George's TI</li> </ul>	
Professional	<p><b>Interview 1 (DR 1 &amp; 2):</b> Support from HEI tutors &amp; other staff was 'great' &amp; 'exceeded expectations'</p> <ul style="list-style-type: none"> <li>• <b>Interview 1 (DR 1):</b> Excellent friendly &amp; supportive atmosphere &amp; environment throughout the course</li> </ul> <p><b>Interview 1 (DR 1 &amp; 2):</b> PGCE course leader's support with BM issues during school placements was very good</p> <p><b>Interview 1 (DR 7):</b> Support with science practicals was rated as 'good enough'</p>	ZFM	<ul style="list-style-type: none"> <li>• <b>Interview 1 (DR 5):</b> Unaware of external SK enhancement courses prior to course (conveyed self-directed study instead)</li> <li>• <b>Interview 1:</b> Too much information on non 'relevant things' ('a bit of an over kill')</li> <li>• <b>Interview 1 (DR 9):</b> Training sessions focussing on lesson planning (e.g. sequence/block planning) were delivered too late &amp; rated as 'not good enough'</li> <li>• <b>Interview 1 (DR 5):</b> Limited training on differentiating &amp; structuring lessons, bridging the gap between SK, planning &amp; delivering SK to students in accessible way</li> <li>• <b>Interview 1:</b> Training offered on evidencing QTS standards was not 'structured' or 'explicit': vague guidance on what constituted as good evidence</li> <li>• <b>Interview 1 (DR 3):</b> More training sessions were needed from the outset on effective CM/BM strategies</li> <li>• <b>Interview 1:</b> Assignments offered minimal structure with meeting QTS standards. The timing of the PLC assignment was rated as 'not good enough' (lessons suffered) &amp; presentation work was repetitive in nature. The relevance of assignments to school practice was questioned.</li> </ul>	ZPA
Situating		ZFM		ZPA

**Table 5** Summary of overall findings relating to George's key experiences during his time in his HEI. Other findings which have not been reported extensively above are also included. These findings highlight the importance of delivering the appropriate training content/guidance at the correct times in the training process without too cognitive overload with non 'relevant' content. George's case study clearly highlights the importance of having strong support networks in HEIs both from tutors and fellow peers for both emotional and professional support. George's case also highlights how he felt his prior experiences did not shape his teacher identity.

#### 4.2.5 *School placement 1: an introduction to George's DP school context*

The school was located in the North East of England. It was rated by OFSTED as an outstanding learning establishment in February 2011. It was a 'smaller than average school' which catered for mixed 11-16 year olds. Table 6 provides brief insights about the school and the students it served. This will enable the reader to keep George's DP placement school in mind when reading about his training experiences.

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
Predominantly White British	Average	-	-	Well above average	Outstanding	Outstanding

**Table 6** Data taken from the school's most recent OFSTED report (2011).

*Key: - Data missing in OFSTED report*

#### 4.2.6 *Key aspects of training in DP school that George felt most positively about*

George's accounts of less positive experiences outweighed the more positive ones. He only spoke fondly about the support/guidance he received from his professional mentor (PM) and a Science NQT.

##### ***Support received from specific school staff: Science NQT & PM***

George had benefited from the support and guidance he received from a Science NQT which he talked more highly about than any other form of support offered in school. He described how the NQT could relate more with the ups and downs that accompanied his training journey having had recently been through the gruelling process himself. Support from his PM was also 'great' because 'a lot more time' was devoted to his professional development needs.

#### **4.2.7 Key aspects of training in DP school that George felt less positively about**

George drew attention to the following areas in no particular order.

##### ***Lack of support from SM & other departmental staff***

George had held high expectations about the quality of support he anticipated to receive in his DP school, but unfortunately these were shattered:

*'I had quite a difficult time in my first placement... just a general lack of support from the Department I was working in which made it a bit difficult for us [me]...There's just been a timing problem, they haven't really had time to spend the amount of time that would be deemed acceptable I think on us'.*

This was because of the additional pressures his subject-mentor had to contend to on a daily basis within a department which was far 'too busy':

*'My subject-mentor, despite best intentions...had a lot of other commitments in school and out of it and I just don't think she had time to focus...we couldn't always stick to it [mentoring sessions]...but if we missed a slot, we did it the week after instead or something like that...that wasn't ideal'*

This general lack of support created a negative atmosphere for him within the department, which appeared detrimental to his overall progress at a crucial stage of his training. The situation hindered his active attempts to build working relationships with colleagues & left him feeling alone in a 'busy' department. He had 'expected' to have received 'more support' and although he was initially 'eager to start' his DP, sadly his 'anxiety' began to surface, leaving him feeling 'stressed' just 'after the first week'. He felt acutely entrapped in his 'own little bubble' whilst 'still finding his feet' and adjusting to teacher life in an alien school setting. The PGCE course leader's intervention to remove him from the placement was certainly a crucial decision which appeared to be the right one as reflected in the successes he later enjoyed. He believed the OFSTED inspection looming over the school 'screwed everything up a little bit' because of added pressures on staff. This had diverted staff attentions away from George's training needs. Luckily, the HEI actively stepped in and supported him until he was placed into a new school.

##### ***Lesson planning***

George felt he lacked the necessary PCK required to plan effectively. Having had to deal with the existing issue of inadequate support he received, his training needs in terms of structuring and differentiating lessons were left un-tackled. He became increasingly frustrated with his lesson

structure appearing out of tune with teaching activities failing to match lesson outcomes. He was left to his own discretion to seek advice when needed, but felt uneasy about approaching the 'busy' staff. His experiences would have been more positive had science staff requested to see his 'plans a week in advance', giving him more time to change them'.

### ***Behaviour management***

A major low point was the 'reoccurring behaviour management issues' experienced particularly with KS3 classes; *'I can't seem to control classes as well as I would like to'*. Frequent references to his battles with one KS3 class were made describing them as 'horrible' and how eventually, he had managed to restore some control over them. Unfortunately, his efforts were soon reversed:

*'the one class, the first time I had them, they were horrible but then I got them and I squashed them [implying that he made progress with them] and then last week, two kids came back from being excluded and it was just mental'*.

This had started dominating lesson observations and his 'teaching style and everything else' was 'ignored' in feedback teachers gave. Interestingly, although having had 'a little bit' of support, he perceived the issue to be 'a bit of a contentious subject' and preferred to tackle them single-handedly rather than 'bringing the teacher back into the class'. He believed the students would respect him more and subsequently strengthen his teacher presence.

What didn't help the situation was the lack of consistency amongst teaching staff in following the school's BM policy. Moreover, the lack of active classroom support he received with SEN classes also created issues. Classroom sharing created additional problems because time was wasted on transporting resources and setting up the classroom when time could have been used more productively to manage behaviour from the outset. He felt his lack of classroom presence was culpable for behavioural issues arising and wished he had exercised more assertiveness in the classroom. He was only too aware that children were 'quick to judge':

*'I think whatever you are like in the first two or three lessons is what they would expect from you from that point onwards'*.

Nevertheless, he expressed no regrets about these negative experiences and believed they made him a stronger science teacher.

## *Developing subject knowledge*

George rated the level of support with developing subject knowledge as ‘not good enough’ because of little training received on subject knowledge and on effective curriculum delivery. He remembered feeling particularly anxious when teaching the KS4 Chemistry and Physics curriculum and how these anxieties continued to prevail:

*‘There were a lot of things...which I had all wrong in my head before I went through the process of re-training myself’ in Chemistry and Physics and ‘to be honest there are still aspects of the syllabus like that now’.*

Support with setting up and delivering science practicals’ was too limited due to shortage of technicians. Figure 12 captures George’s diamond ranking responses positioned his responses during Interview 1 (December, 2011)

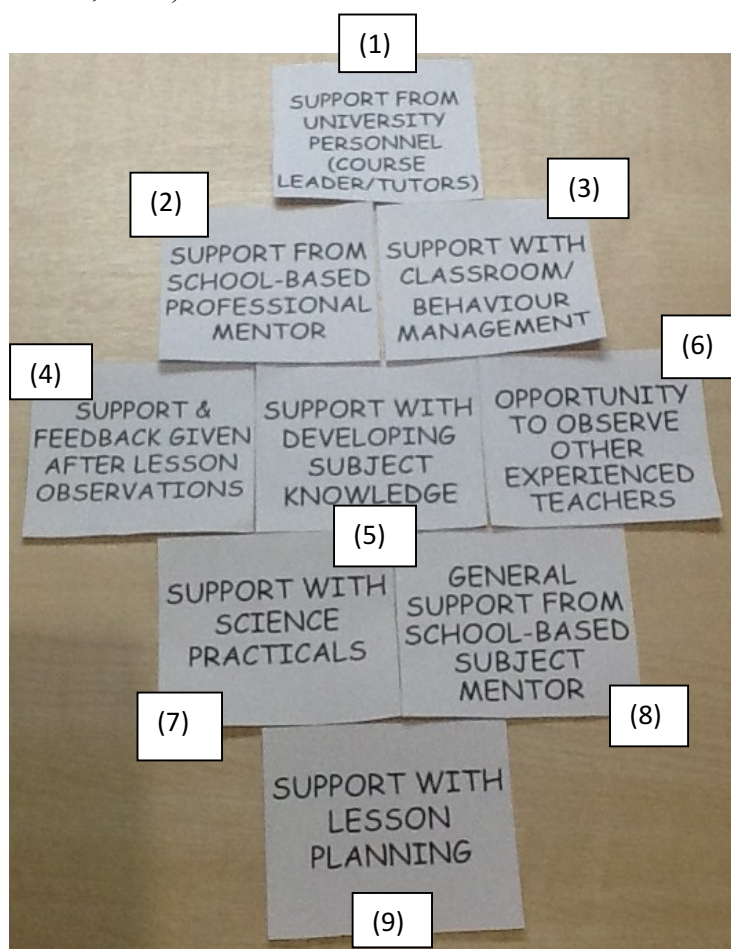


Figure 12

Summary of findings of George’s key overall experiences in 9 key training areas during part of his time in his HEI & DP school

Table 7(p. 83) presents a final summary of George’s key training experiences and reasoning process when completing the diamond ranking exercise.



IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE
<b>Personal</b>	<p><b>Interview 1:</b> Support from friends</p> <p>•<b>Interview 1 (DR1):</b> Support from PGCE course leader &amp; other university personnel was excellent when facing difficulties in DP school</p> <p>•<b>Interview 1 (DR2):</b> 'The professional mentor had a lot more time and she was great and everything...I knew she had the time for us'</p>	ZFM		
<b>Professional</b>	<p>•<b>Interview 1 (DR2):</b> 'The professional mentor had a lot more time and she was great and everything...I knew she had the time for us'</p> <p><b>Interview 1:</b> 'Great' support offered by an Science NQT</p>	ZFM	<p>•<b>Interview 1 (DR3):</b> Difficulties encountered with CM/BM &amp; George felt in-school support was inconsistent (e.g. with SEN classes). University support was great</p> <p>•<b>Interview 1 (DR4):</b> Little support &amp; feedback after lesson observations (heavily focussed on BM &amp; lesson structure &amp; 'everything else' in the feedback 'ignored')</p> <p>•<b>Interview 1 (DR5):</b> Little support with SK development - rated 'not good enough' &amp; needs only 'partially met' (struggled with KS4 Physics/Chemistry) &amp; teaching experiences rooted in KS3 Science</p> <p>•<b>Interview 1 (DR8):</b> 'Expected more support' in general (lack of support from SM &amp; meetings sometimes rescheduled)</p> <p>•<b>Interview 1 (DR9):</b> Lack of support with lesson planning (e.g. lesson structure) &amp; lesson plans were not requested in advance</p> <p>•Minimal support from Science department as a whole: 'too busy' (negative atmosphere)</p> <p>•Removal from original DP school disrupted training</p>	ZFM
<b>Situated</b>				
<b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b>				
			<p>•<b>Interview 1 (DR6):</b> 'The opportunity was there' to observe experienced teachers but he 'didn't take it' ('was busy doing other things'). ZFM</p> <p>•<b>Interview 1 (DR7):</b> No support setting up practicals (only 1 technician in the department), but also felt he didn't need it. ZFM</p> <p>• <b>Interview 1:</b> Little focus on QTS standards but George was also too 'busy' getting to grips with teaching.</p>	

**Table 7 Summary of key findings in relation to George's training experiences in his DP school. Other findings are also summarised which have not been reported extensively above. Key messages here centre on the importance for training schools to ensure STs' enter a positive school atmosphere where personal and professional support is readily available. Not many positive experiences situated in the context of George's DP were mentioned which is concerning as negatives experiences so early on in the training process may be responsible for trainees leaving the teaching profession. George was in an outstanding school, which provides clear evidence that even outstanding training schools can fail to provide support.**

#### 4.2.8 School placement 2: an introduction to George's LP school context

George's long school placement was at a 'much larger than average-sized' secondary school Academy which catered for mixed 11-18 year olds. They received an overall OFSTED grading of good in 2012. Table 8 summarises further details

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
Predominantly White British	Well above average	Above average	Average	Well above average	Outstanding	Outstanding

Table 8 Data taken from the school's most recent OFSTED report (2012)

#### 4.2.9 Key aspects of training provided in LP that George felt most positively about

The following three areas were highlighted.

##### ***Support from school-based mentors (SM & PM) & other staff***

George's experiences in his LP were lot more positive and he spoke positively about the support network the school had put into place for him. He successfully forged good working relationships with his SM, PM and other staff and his 'confidence improved' significantly. His SM set 'high expectations' and his mentor's 'strict' way certainly helped although he found it 'hard to please' him. Although feeling 'stressed at being observed and under scrutiny' by his SM, he felt he 'would rather fix issues now than later' and welcomed his SM 'strict' way of mentoring:

*'I've been under a huge amount of scrutiny and his [subject mentor] been really difficult to please but I'd rather have that now than him not caring which was the case last time...but...at times I felt that I needed a bit more encouragement from him but at the same time I think having someone with very high expectation like that probably did help in the long run...it didn't do us any harm anyway..'*

The collegial relationships developed with other science staff and engaging in professional dialogue certainly contributed to his teacher identity development, pedagogy and knowledge of the science curriculum. Interestingly, he did openly admit his fears of being judged; 'you are in a position where you don't want to ask for help too much out of fear of looking unprepared or weak'. This may have hindered him from seeking help at times when needed.

## ***Lesson planning***

A high point later on in his LP was the progress made in tackling the issues raised earlier in Sections 4.2.6 (p. 79) and 4.2.9 (p. 84) respectively. With practice and ‘really good’ support from his SM and other staff, he mastered the skill of structuring lesson plans with science activities successfully synchronised with lesson outcomes. The ability to plan a sequence of lessons also became progressively ‘much easier’, lessons were ‘better paced’ and ‘students were more on task’. Team teaching with a fellow science trainee also enriched his experiences from a lesson planning viewpoint. It further developed his lesson planning skills and delivery of science lessons. This pedagogical approach was ‘useful’ and a highly valued aspect of his training:

*‘It’s [team teaching] good from a planning point of view cuz you get sort of bounce ideas off each other and you get to see each other teach as well...I mean I’ve said all along, it’s one of the strong points of the course and I think more time should be spent on it. I was trying to organise something where we actually go and see each other in school and watch each other teach and some people are all up for it and some people aren’t’.*

He felt strongly about HEI allocating more opportunities for future STs’ to team teach and to observe each other during school placements to enhance the learning and training process. This was an opportunity he missed out on having had to prioritise his time executing more pressing tasks like lesson planning or marking.

## ***Classroom management***

George continued to struggle with behavioural management particularly with his Year 7, 8 and 10 classes. However, with the combined support from both the HEI and school, he ‘put a plan of action together’ to tackle his problem classes. He quickly learnt to ‘draw lines under things’ by ‘completely forgetting it [behavioural issues] and starting again’. He actively sought help from the class teacher’s for the ‘crazy Year 7’s and Year 10 class who often ‘played up’. Though initially against the idea, he asked class teacher’s to make their presence known in an attempt to ‘terrify’ students into behaving and ‘calming’ down.

#### **4.2.10 Key aspects of training provided in LP that George felt less positively about**

The following three are highlighted.

##### ***Classroom management***

Prior to starting his LP, George was already 'expecting' it to be 'very hard at the start' and expecting to face behavioural issues knowing the school was in 'quite a rough end' of the city. However, he reassured himself and felt he would 'be ok as long as' he was 'reasonably ready' for it and believed things would 'settle down a bit' half way through. Once on his placement, his suspicions were correct, having had to 'deal consistently with bad classroom behaviour...every day' (e.g. with his 'disgracefully behaved' Year 7 and 8's). His main low points revolved around the realisation that 'he was never 100% going to completely flatten Year 7'. Again like in his DP, he felt the situation was worsened by staff across the school failing to unite in tackling poor behaviour consistently though support was available 'in some areas but not in others' (e.g. SEN classes). He pointed out (prompted response) how he felt the school context he was placed in certainly influenced his subsequent training experiences with poor behaviour (first quote) and compared his experiences with that of others (second quote):

*'you feel like it's [poor behaviour] impacting on the learning...but at the same time I know it's not just me...it's like a school issue, but it still gets you down...it really wears you out...there was behaviour issues last time [referring to DP] but these are different...and a lot of it relates to the size of the school and the catchment area'.*

*'I know that some people have been put into totally different schools and have had no behavioural issues what so ever...to them a behavioural issue is a kid's forgotten his pencil...whereas mine was like...getting up and fighting in the middle of the class and chucking stuff out the window and stuff like that...different demographic sort of school'.*

##### ***Developing subject knowledge***

George described his subject knowledge as 'patchy' but felt he was making progress. In particular, he raised concerns once again about the lack of support he had with how to teach and how to bridge the 'gap between subject knowledge, planning and teaching that subject knowledge' in an accessible way to meet students learning needs. Finally, he felt his teaching experiences in KS3 outweighed the experiences he had with teaching the KS4 science curriculum. He felt a little disappointed as he 'would have liked to have taught some biology' as he felt he would be going into his NQT year 'blind' but acknowledged it was 'probably good' for him 'in the long run' to 'teach out of specialism as well'.

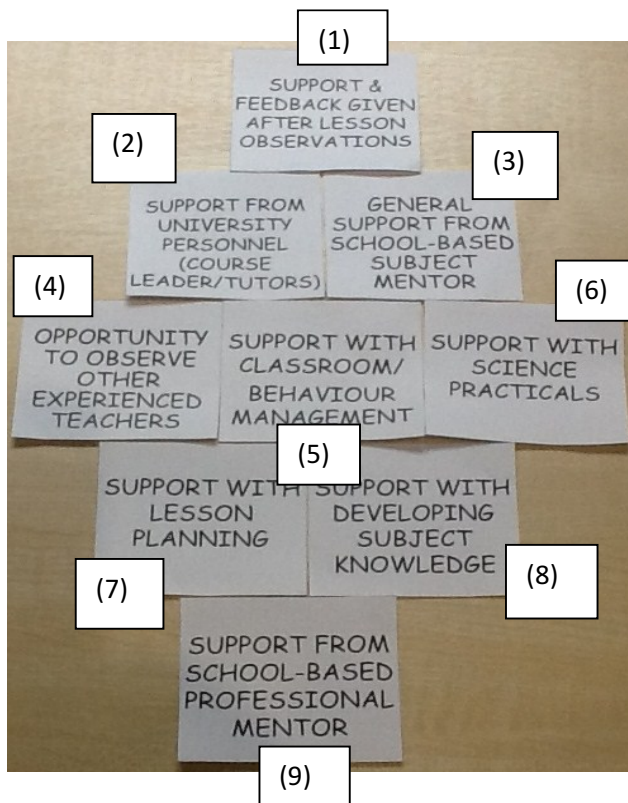
***The general role of PM was questioned***

George described his PM as being ‘good’, ‘very experienced’ and somebody who knew ‘what she was doing’. However, she only taught part-time, which left him feeling restricted to how ‘much time’ she could offer him. Moreover, he was unsure whether weekly meetings were still going ahead. Interestingly, he also actively generally questioned the professional mentors’ general role in teacher training in schools:

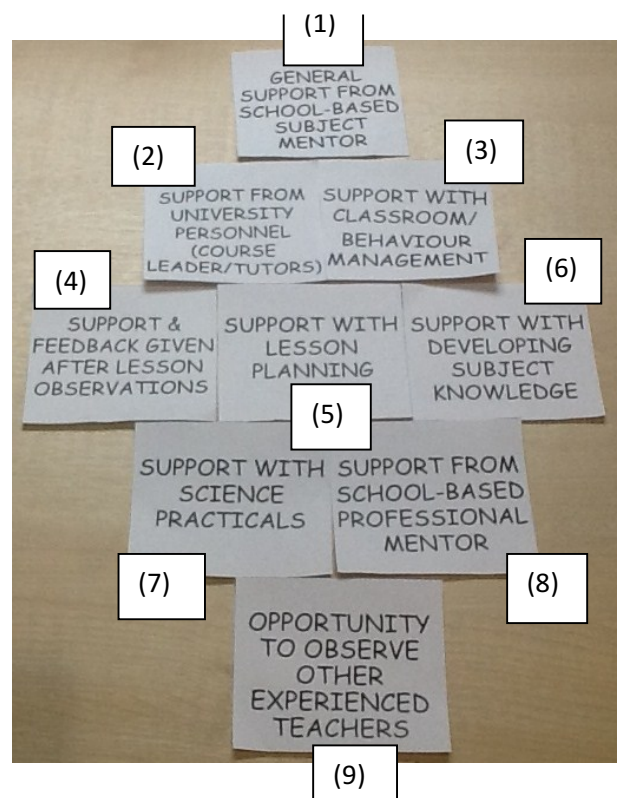
*‘the...professional tutor at school is there when I need her but I don't really have a lot to do with her...you don't see them, but you don't really need to...the only time you see them is when they need to see you about something...there's this big thing about the professional mentor and your subject mentor and that they communicate in schools and stuff, and I think the professional mentor is a bit of a middle man...you probably could get rid of them...I just questioned the whole point of professional mentors in school anyway to be honest’.*

Figure 13 presents George’s diamond ranking responses given during Interview’s 2 (March 2012) and 3 (June 2012) which correspond his training experiences whilst in his LP school.

**Interview 2: Key training experiences during early stages of George’s LP (Term 2: February -April)**



**Interview 3: Key accounts of experiences during later stages of George’s LP (Term 3: April-June)**



**Figure 13 Summary of George’s experiences in 9 key training areas during his LP school**

Table 9 (p. 88) and Table 10 (p. 89) encapsulate George’s overall training experiences in his LP school and diamond ranking responses are cross-referenced to the table.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER'S ZONE
Personal	<ul style="list-style-type: none"> <li>•Interview 2 (DR2): Support from PGCE course leader &amp; other university personnel was consistently excellent &amp; needed less in LP school</li> <li>•Interview 2 (DR3): Collegial support from SM &amp; other staff 'very good'. Ample opportunities to exchange dialogue. Preferred 'high expectations' set by SM</li> </ul>	ZPA	<ul style="list-style-type: none"> <li>•Interview 2 (DR5): CM/BM difficulties but support available (BM policy not followed consistently). Impacted on learning, but eventually felt George did feel 'more in control')</li> </ul>	ZFM/ZPA
Professional		ZPA		
<b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b>				
<ul style="list-style-type: none"> <li>•Interview 2 (DR9): Support from PM &amp; dialogue exchanged 'very good' (extra workshops delivered by the school). But George didn't need this support at this stage of training &amp; questioned the general role PM's play in general (are they required?) ZFM/ZPA</li> </ul>				
Situating	<ul style="list-style-type: none"> <li>•Interview 2 (DR1): Communication &amp; feedback after lesson observations by George's SM was very good (e.g BM)</li> <li>•Interview 2 (DR2): Support from PGCE course leader &amp; other university personnel was consistently excellent &amp; needed less in LP school</li> <li>•Interview 2 (DR3): Support from SM &amp; other staff 'very good'. Ample opportunities to exchange dialogue. Preferred 'high expectations' set by SM</li> <li>•Interview 2 (DR4): Observed Head of Department &amp; team taught a lesson: valuable experiences</li> <li>•Interview 2 (DR5): CM/BM difficulties but support available (BM policy not followed consistently). Impacted on learning, but eventually felt George did feel 'more in control')</li> <li>•Interview 2 (DR6): Good support with practicals Stable learning/training environment</li> <li>•Interview 2 (DR7): Mastered lesson planning himself &amp; didn't need as much support (e.g. structure, pace &amp; less time to plan)</li> </ul>	ZPA		
Situating		ZPA		
Situating		ZPA		
Situating		ZFM		
Situating		ZFM/ZPA		
Situating		ZFM/ZPA		
<b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b>				
<ul style="list-style-type: none"> <li>•Interview 2 (DR8): Subject knowledge was 'patchy' but improving with better support in school. Little opportunity to teach KS4 Biology' ZFM/ZPA</li> <li>•Interview 2 (DR9): Support from PM &amp; dialogue exchanged 'very good' (extra workshops delivered by the school). But George didn't need this support at this stage of his training &amp; questioned the general role PM's play in general (are they required?) ZFM/ZPA</li> </ul>				

**Table 9 Summary of overall key findings in relation to George's training experiences whilst in his LP school (early stage). This table also encapsulates other findings which have not been reported extensively above. George's LP school was Ofsted rated as a good school and it is evident from the table that George's experiences situated in this school context were significantly more positive in comparison to his DP school. There was clearly positive ZFM & ZPA which made the training experience a more productive one which helped boost his confidence in his teaching practice which in turn may shape his teacher identity in a positive way.**

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED GEORGE'S IDENTITY DEVELOPMENT	VALSINER ZONE
Personal	<ul style="list-style-type: none"> <li>•<b>Interview 3 DR(9):</b> Opportunities there to observe other teachers but 'too busy' planning lessons to take up this opportunity</li> <li>•<b>Interview 3:</b> Team teaching invaluable experience: 'bounced ideas off others'</li> </ul>	ZFM  ZFM/ZPA	<ul style="list-style-type: none"> <li>•<b>Interview 3 DR (3):</b> Issues with CM/BM were still encountered &amp; George felt this was linked to the demographic location of the school (got through it with departments support)</li> <li>•<b>Interview 3 DR (8):</b> Didn't see PM, but felt he didn't need to. George felt a PM in general 'is a bit of a middle man...you probably could get rid of them'</li> <li>•<b>Interview 3 DR (9):</b> Opportunities there to observe other teachers but 'too busy' planning lessons to take up this opportunity</li> </ul>	ZFM
Situational	<ul style="list-style-type: none"> <li>•<b>Interview 3 DR (1):</b> 'SM was great...really strict...really hard' on George still but preferred this although at times he would have preferred more encouragement from him</li> <li>•<b>Interview 3 DR (2):</b> Support from university was still 'great'</li> <li>•<b>Interview 3 DR (4):</b> Still happy with feedback received from SM and other teaching staff. Helped with his learning journey</li> <li>•<b>Interview 3 DR (7):</b> Less support with practicals was needed towards the end of LP (George's confidence grew with experience over time)</li> <li>•<b>Interview 3 DR (8):</b> Didn't see PM, but felt he didn't need to. George felt a PM in general 'is a bit of a middle man...you probably could get rid of them'</li> <li>•<b>Interview 3 DR (9):</b> Opportunities there to observe other teachers but 'too busy' planning lessons to take up this opportunity</li> <li>•Team teaching invaluable experience: 'bounced ideas off others'</li> <li>•Support from school staff shown when delivering PLC presentation</li> </ul>	ZFM  ZFM  ZFM  ZFM  ZFM  ZFM/ZPA  ZPA	<ul style="list-style-type: none"> <li>•<b>Interview 3 DR (1):</b> 'SM was great...really strict...really hard' on George still but preferred this although at times he would have preferred more encouragement from him</li> <li>•<b>Interview 3 DR (3):</b> Issues with CM/BM were still encountered &amp; George felt this was linked to the demographic location of the school (got through it with departments support)</li> <li>•<b>Interview 3 DR (5):</b> Would have liked more support with lesson planning earlier on in school (didn't fully equipped with skills).</li> <li>•<b>Interview 3 DR (6):</b> Lack of support with 'bridging the gap between subject knowledge, planning and teaching that subject knowledge'</li> <li>•<b>Interview 3 DR (8):</b> Didn't see PM, but felt he didn't need to. George felt a PM in general 'is a bit of a middle man...you probably could get rid of them'</li> <li>•<b>Interview 3 DR (9):</b> Opportunities there to observe other teachers but 'too busy' planning lessons to take up this opportunity</li> <li>•Little discussion &amp; support with evidencing QTS standards</li> <li>•Overall, rated support with SK during school placements both as 'good enough' &amp; 'not good enough'</li> </ul>	ZFM  ZFM/ZPA  ZFM  ZFM/ZPA  ZFM/ZPA  ZFM/ZPA
		<b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b>		
		Atmosphere in department initially 'good' but diminished after 'massive scrutiny'. Working relationships strained (not on a 'personal level')		

Table 10

Summary of overall key findings on George's training experiences whilst in his LP school (later stage). George struggled in the latter stage of his LP school, which highlights how important it is for schools to provide the correct ZFM to ensure STs' can maximise their professional learning & identity as science teachers. Likewise, findings here emphasise the importance of having a positive ZPA where personal and professional support is widely available and accessible.

#### 4.2.11 Overall teacher identity scenario that George experienced

In light of the above findings, George's overall experiences were analysed and judged to fit scenario 3 (Figure 14) of Day & Kington's (2008) teacher identity model in terms of the degree of dominance particular experiences played. George's professional and situated identity dimensions appeared to exercise the most dominance during his training year. His teacher identity depicted fluctuations but George was able to positively manage these both independently and with the support of others. He demonstrated resilience, a positive sense of well-being and was emotionally strong.

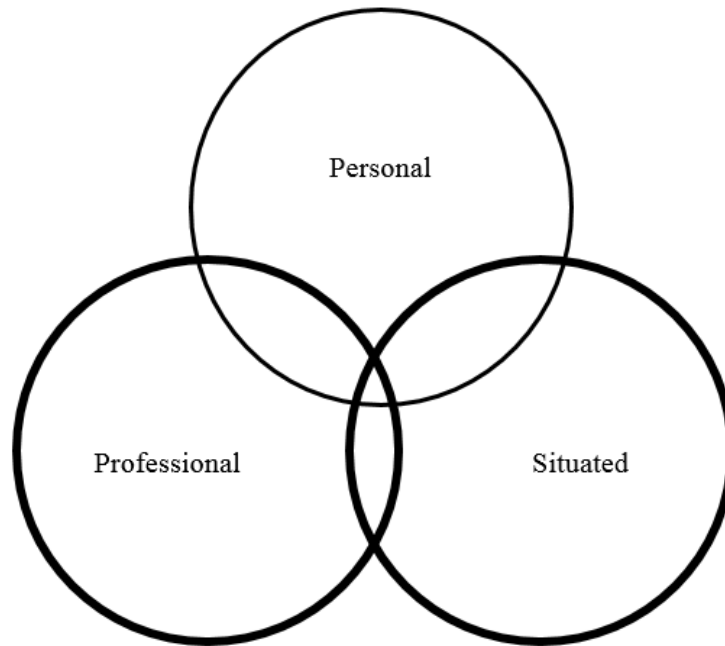


Figure 14 George's experiences were characteristic of Scenario 3 of Day & Kington's (2008) teacher identity model (2 dominant identity dimensions).

On the whole, George's teacher identity was shaped by the multitude of personal, professional and situated experiences reported previously. He voiced how the support networks embedded within university (staff & peers) and in his LP school were 'without a doubt' an imperative aspect of his professional development. An interesting finding was how his personal identity evolved as a result of becoming a science teacher. He felt his identity 'changed a little bit' and was essentially reconstructed in terms of his personal persona and in feeling 'a bit more confident in different social situations outside of school' (e.g. how he previously felt around 'a gang of kids standing outside metro stations'). Having 'spent so much time working with young people' he no longer felt 'warey around them'. He also 'noticed a difference' in the general way he felt about his identity in a professional capacity at school and likened the role of a 'good teacher' to that of a 'good actor' and felt he was beginning to fulfil an 'actors' role in multiple areas of school life:

*'you develop this persona don't you when you teaching..  
and I've sort of felt that develop as I've been going through'.*



#### ***4.2.12 How George felt overall by the end of his training***

This section serves the purpose of bringing George's case study to a close by firstly providing summary insights into how he felt about his training experiences at the end of his journey, in terms of his:

- personal descriptive insight into George's training experience overall
- perceived rate of progress made in teaching, level of overall satisfaction with his training pathway (in different aspects of his preparation) & degree to which expectations for teacher development were met & overall support received from UT, SM & PM over the training year

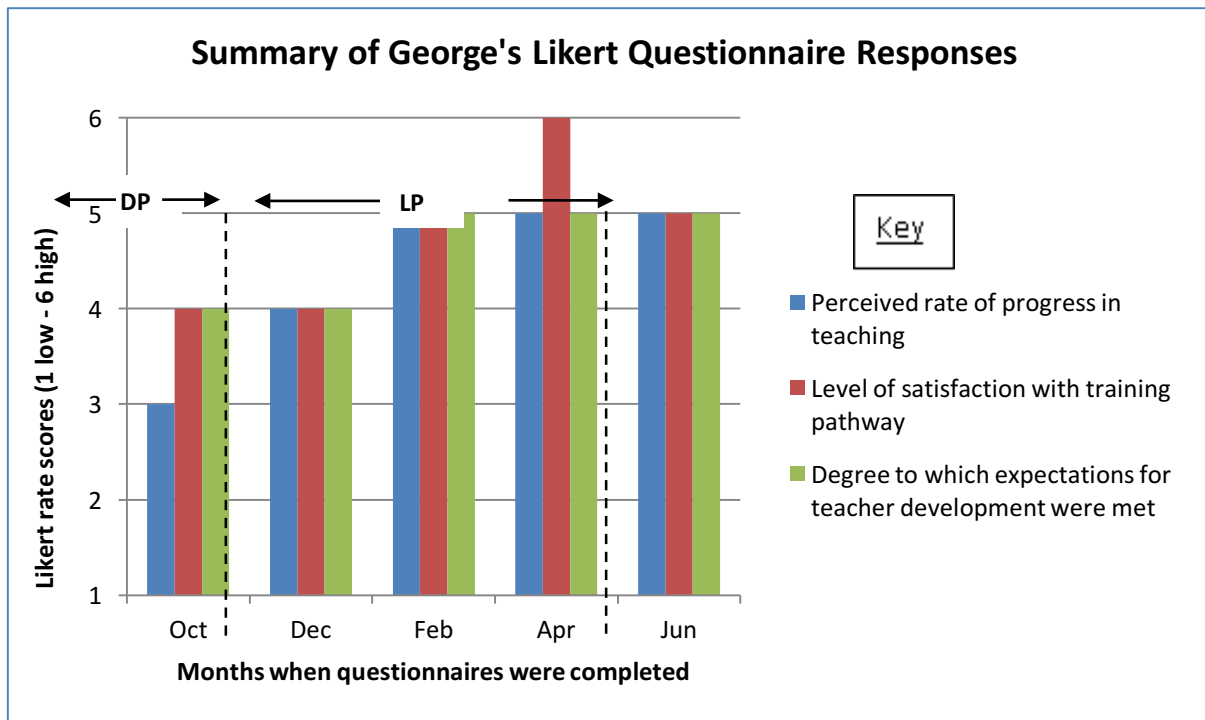
#### ***4.2.13 Descriptive summary of George's training experience overall***

When asked to summarise his overall experiences throughout his training year in a few words, he described them as 'challenging, 'work load was insane', 'intense', 'hard work', 'eye opening', 'quite testing' but 'rewarding aswell'. He described how he could 'see the improvement' in progress in relation to developing his pedagogic teaching methods which he found 'a bit easier'. George also described how his confidence grew as time went on when he felt 'more at home in the classroom and not as nervous. For him, it was was 'the intensity' of the course which he struggled to get to grips:

*'it's a very steep learning curve and there's a lot of work to do in a short space of time'.*

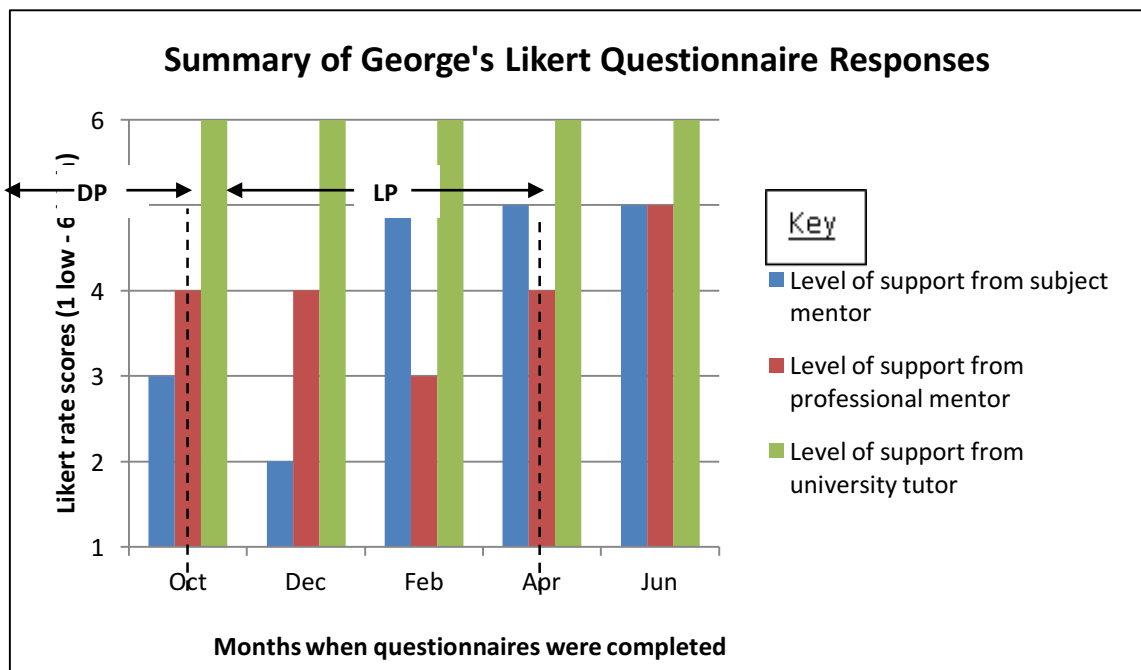
#### ***Rate of progress made in teaching, overall satisfaction with training pathway & degree to which expectations for teacher development were met***

George's, responses to a likert type questionnaire were recorded at five points during his training in relation to his progress, satisfaction and expectations. These have been presented graphically in Graph 1 (p. 92) below. In all three cases, his the level of progress, satisfaction with his training and expectations respectively improved once he had 'found his feet' and settled into his school placements. particularly January onwards. George's level of satisfaction with his training pathway was at its optimum in April which correlates with the successes he had in his LP school.



**Graph 1** Graph to show how George rated his overall progress made with his teaching, his satisfaction with his training pathway and the degree to which his expectations were met over the year

Finally, to bringing this case study to a closure, is George's rating of the level of support he received from his UT, SM and PM which is also represented graphically below (Graph 2)



**Graph 2** Graph to show how George rated the level of overall support received from his SM's, PM's and UT throughout his training year

Graph 2 shows a clear dip in the support offered by George's SM (December - during his DP) and PM (February - during his LP) which are consistent with the findings reported earlier. Fortunately for George, he had an excellent and consistent support from his university tutors which he made good use of.

### 4.3 Tracey's Case Study

This chapter now moves on to reporting the key findings from Tracey's case study.

#### 4.3.1 Tracey, an introduction to prior learning & other experiences

Tracey's experiences prior to embarking on her teacher training journey are summarised in Figure 15 below accompanied with reasons for wanting to enter the teaching profession.

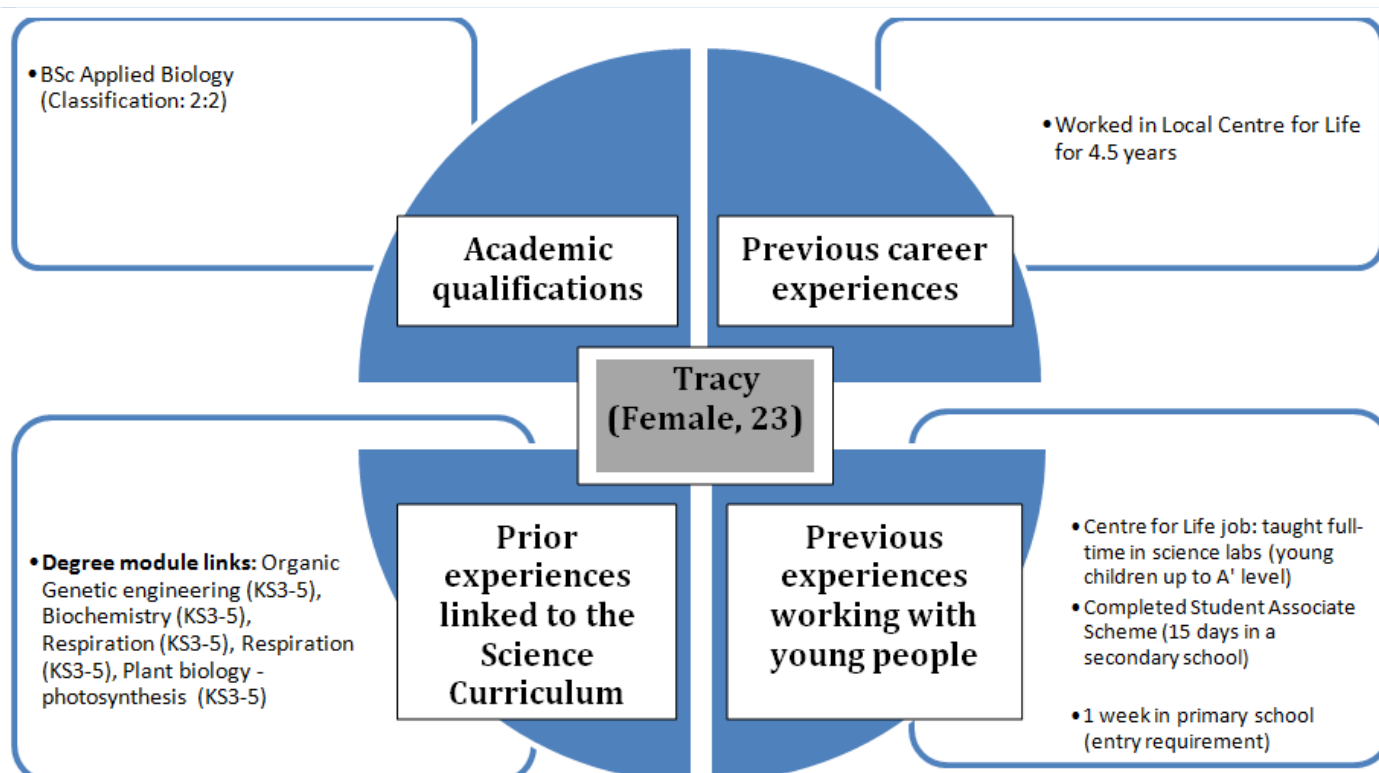


Figure 15 Brief insights into Tracey's life experiences prior to starting the Science PGCE

Tracey was the youngest ST in the study who portrayed a shy, warm demeanor but was not afraid to voice her feelings and carried herself in a very professional manner. She was incredibly hardworking and held high expectations of herself. She had recent teaching experiences through her work at a local Centre for Life establishment delivering practical lab-based sessions. In addition, her BSc degree in Applied Biology ('heavily biochemistry based) also prepared her in terms of the practical skills and subject-knowledge she acquired although a few weaknesses still existed in her knowledge:

*[There are] 'quite a few areas obviously still to work on...physics ('quite poor') and chemistry but theres still you know some areas of Biology, things like respiration that I couldn't you know just go in and teach...I would have to look up and kind of go over again before I could teach it I think effectively'.*

### **4.3.2 Tracey's own schooling experiences & the teacher she aspired to be**

Reminiscing back, Tracey recalled how she 'liked' science 'a lot'. However, she disliked physics because she 'didn't have a very good teacher' and effectively taught herself ready for her GCSE exam. Luckily, she did have other inspiring teachers who influenced her:

*'I had a few inspirational teachers at school (in each school, first, middle and high school). In high school I had 2 inspirational biology teachers and a brilliant chemistry teacher, hence the route I took towards studying a degree with a mixture of both'.*

Thus, she wanted to follow in their foot steps and aspired to become an '*inspirational teacher who was friendly, approachable and who students liked as a teacher and enjoyed their lessons*'. Thus, she believed developing the following characteristics were essential to becoming a good science teacher:

*'Someone who is versatile, who can change their practice depending on the students/class they teach and describe theories and ideas in a variety of ways to suit all students. To be able to make science engaging and interesting for students'.*

Thinking from a student's point of view, she believed they would want her to come across as being 'fun' who incorporated 'practicals' and 'played games' as part of their lesson activities. She felt her personal experiences as a learner would enrich her practice by commenting:

*'I feel sharing these [personal learning experiences] with students is very important especially for the students to be able to relate to you and can help them to think about you or even the topic at hand in a different light'.*

Tracey's mother was also a long standing science teacher at the school she herself went to as a student and Tracey returned to this very school as part of her LP training.

### **4.3.3 Reasons for choosing the PGCE route**

Tracey initially applied to both the PGCE and GTP programme, but chose the PGCE with her decision influenced by recommendations from former student-teachers. Hence, she 'had quite high expectations' of her training and the new course leader having 'heard good things about her'. She believed the PGCE would offer more of a theoretical basis in addition to it being a qualification recognised worldwide:

*'I just thought with the GTP its not recognised everywhere [Scotland]...you know its not as recognised as a PGCE is so I just thought it would give me a more solid kind of base to work from'.*

She drew attention to several aspects of her training experiences which she felt most and least positively about. These are reported next.

#### **4.3.4 Key aspects of HEI training that Tracey felt most positively about**

Tracey felt generally happy with most aspects of her training preparation in university and felt on the whole lived up to her expectations. In particular, the following areas were flagged up which she felt most positively about.

##### ***Course structure & contact time***

Overall, Tracey had felt 'happy' with the PGCE programme structure and contact time describing it as being 'really good' and the preparation it offered to her:

*'I have really enjoyed the contact time in University the tutors are really helpful and the lectures very interesting, especially the knowledge enhancement sessions'.*

Sessions were designed to encourage reflection by incorporating learning activities such as group seminars, lectures, meetings and practical sessions to encourage students to share their experiences through professional talk. She described sessions by guest speakers as 'very good' which provided fruitful insights into diverse ways she could apply pedagogical theory to her practice. She commented:

*'we had lectures...on accelerated learning cycle and stuff like that and I haven't had time to apply it yet...we did an enhanced school week and...the Uni organised for us to go to XXXX School and to spend a day...learning about Autism...in more detail...it's given us a really broad range of...ideas'.*

Returning to university once completing her DP assisted in consolidating her learning by sharing her experiences with fellow peers. It was also a window of opportunity for her to further her theoretical knowledge on ways to improve her practice:

*'I have enjoyed most of the lectures since coming back to university since Xmas, I have found most of them very helpful and they really got me thinking of things I could try in the classroom and incorporate into my everyday teaching. I really enjoyed the lecture about pastoral care, incorporating literacy into lessons and about inspiring students to love learning'.*

*'We were also set the task of designing and presenting an A' level lesson to the rest of our subject specialism (so me to biology). I found this to be very rewarding and useful as it helped improve my own subject knowledge as well as getting ideas to use'.*

The support from colleagues and relationships established (ZFM) together with lectures (ZPA) appeared central to Tracey's professional development.

### ***PGCE course leader: tailored support & feedback***

The PGCE course leader's professional and emotional support proved imperative when encountering problems with a particular teacher to whose class she was attached to:

*I came into see [my course leader] about my planning (time it takes), she calmed me down and reassured me about the lesson planning so that made me feel better over the last few weeks'.*

It was evident that Tracey had felt uncomfortable at the prospect of seeking support from her school mentor. Hence, this backup support offered her reassurance and helped her salvage her confidence, giving her the courage to see things through rather than opting to be removed from the situation:

*'she said [PGCE course leader] she would take the lessons off me if I wanted to, but...I've just said I'll...see how it goes like...I'm kinda taking the approach of well I'll just do what I'm gonna do...and try and stress over it less and just if she's giving me negative feedback or if she's horrible or whatever...I'll just tell her'.*

Tackling the issue single-handedly in a professional manner was a fruitful experience for Tracey and key to her development in becoming a stronger science teacher. In addition, the constructive feedback she received for a related lesson observations proved 'really influential' to rebuilding her confidence:

*'I guess having the back up of your course leader, seeing things that your school tutors seen as well when they came in and did observations, kind of backing up things that they've said which is always good for confidence building'.*

Unfortunately, her resilience had subsided considerably in the last few weeks of her LP. She was consequently removed and placed into a different school where she resumed her training for the remaining week. At the time, she was also experiencing personal crises (family bereavement and relationship breakdown). But the personal and professional support the PGCE course leader gave her was key to her decision to continue on with her training at such a testing time.

### ***Subject knowledge***

Tracey spoke positively about her team teaching experience delivering an A'level Biology task in the company of fellow university peers. This was a 'very rewarding' and 'useful' experience which

further developed her biology knowledge. Through professional discourse, she was able to exchange ideas and learn from the feedback she was given.

### ***Practical aspects of science teaching***

Tracey had '*had quite a lot of experience*' and '*support with carrying out practical demos*' and in most cases didn't need assistance. Her previous job experiences equipped her with the skill set required and gave her confidence to conduct science experiments in front of a class.

### ***Reflective activities (assignments & virtual blogging)***

Tracey referred to her written assignments and electronic blogs as effective 'reflective tools' which assisted her in identifying areas of strengths and weaknesses in her practice.

#### ***4.3.5 Overall key aspects of HEI training that Tracey felt less positively about***

Tracey highlighted the following two areas of her HEI training that she felt less positively about.

### ***Lesson planning***

Tracey recalled feeling apprehensive about her pedagogical knowledge on lesson planning, having not received training until well into her DP. Hence, guidance and expectations on lesson planning needed to be communicated earlier on in the course:

*'I would have liked more stuff at the start about lesson planning and...like managing your time better and that kind of thing...cuz its really hard to...especially when you go from diagnostic to long placement...the workload is like a big jump up...and obviously cuz you're at this uni you have to do like your blog and all your reflections on your lessons and this and that and...so its quite hard...to keep on top of [lesson planning]'.*

The process had spiralled into a labour-intensive task, one that she felt she was 'fighting against'. This had heightened her stress levels, leaving her feeling deflated and somewhat negative about teaching practice.

### ***Evidencing Teacher Standards***

Evidencing the teacher standards was particularly a vague area of her training because ‘there wasn’t much structure’ and was ‘*quite open*’. More insights and support was needed especially for those professional standards that appeared unclear and difficult ‘*to find evidence for*’.

### ***Limited contact time with allocated tutor***

Tracey only saw her allocated HEI tutor when coming to do a lesson observations and felt it would have been ‘good’ to of spent more time with him. But equally she acknowledged how the logistics of this may have been ‘quite hard’ to do. She disliked the ‘big gap’ between seeing her tutor from her DP to LP which is something the course leader also later highlighted in Tracey’s case. Having had encountered some challenges in school, her course leader and tutor both pondered the perhaps they should have ‘kept a closer eye’ on her in order to have detected issues earlier.

The major findings generated from Tracey’s HEI experiences are summarised in Table 11 below.



IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
<b>Personal</b>	<ul style="list-style-type: none"> <li>Practical experiences from previous job at local Centre for Life</li> <li>Academic qualifications</li> </ul>		<ul style="list-style-type: none"> <li>Struggled to be assertive</li> <li>Family bereavement</li> <li>Relationship breakdown</li> </ul>	
<b>Professional</b>	<ul style="list-style-type: none"> <li>Presenting an A' level lesson task in biology session was a 'very rewarding' &amp; 'useful' professional experience</li> <li>University observation went very well</li> <li>Course expectations were met</li> </ul>	ZPA		
<b>Situated</b>	<ul style="list-style-type: none"> <li>Enjoyed contact time in university (training was flexible)</li> <li>Lectures were interesting/enjoyable with some 'very good' guest speakers (stimulated thinking on how to incorporate theory into everyday practice e.g. e.g. knowledge enhancement sessions, pastoral care, incorporating literacy into lessons &amp; inspiring students to love learning)</li> <li><b>DR(2) &amp; DR(4):</b> Support from PGCE course leader was excellent (e.g. lesson planning for Chemistry &amp; with difficulties encountered with a teacher in LP) &amp; university tutors were 'really helpful'</li> <li><b>DR(4):</b> Presenting an A' level lesson task in biology session was a 'very rewarding' &amp; 'useful' professional experience (e.g. improved SK &amp; provided ideas to use)</li> <li>University observation went very well</li> <li>Enhanced school week was 'very good' (e.g. had opportunities to learn about autism)</li> <li>Many opportunities to reflect on professional practice (e.g. blogging, assignments)</li> <li><b>Key areas of training Tracey was satisfied with:</b> online support, modelling effective science teaching strategies, scientific enquiry skills, subject knowledge curriculum delivery), subject knowledge (curriculum delivery), assessment, pedagogic content knowledge, modelling enthusiasm for science and science teaching, understanding learners, stable learning environment established</li> </ul>	<p>ZFM/ZPA</p> <p>ZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM/ZPA</p> <p>ZFM/ZPA</p>	<ul style="list-style-type: none"> <li><b>DR(S):</b> Struggled with lesson planning (time consuming) in school (university session was delivered too late): <ul style="list-style-type: none"> <li>university expectations on lesson planning were unclear</li> <li>lack of guidance in whole group sessions</li> <li>other areas of teaching experiences were affected (e.g. organisation)</li> </ul> </li> <li>Lack of guidance on time management, assertiveness in the classroom &amp; organisational skills</li> <li>Evidencing QTS standards was a 'daunting'/'stressful' process (e.g. more guidance on what constituted as good evidence to meet standards was needed): <ul style="list-style-type: none"> <li>guidance from university was not structured &amp; 'quite vague'</li> <li>would have liked more structure at the beginning of course</li> <li>more guidance needed on how to put evidence portfolio together</li> </ul> </li> <li>Would have liked more time with university tutor</li> </ul>	<p>ZFMZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZPA</p>

Table 11

Summary of Tracey's key HEI experiences which shaped her science teacher identity. Other findings not reported extensively above are also included if relevant. All of the above responses were from Interview 1. Responses from diamond ranking exercise are also summarised in table. Tracey clearly would have liked more 'structured' training from her HEI, which George also highlighted. This case study highlights that despite having previous life experiences, Tracey still would have benefited from a session dedicated to time management, organisational skills and assertiveness. Maybe these are key training aspects that should be incorporated into training provision offered by all ITT providers with their induction periods. Reflection on professional teaching practice was also found to be integral to improving Tracey's pedagogical practice and identity as a evolving science teacher.

#### 4.3.6 *School placement 1: an introduction to Tracey's DP school context*

Tracey's DP school was rated as outstanding by OFSTED in 2009. It catered for mixed 11-18 year olds from a range of backgrounds. Details are presented in Table 12: -

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
Significant social & economic disadvantage	Slightly higher than national average	–	Higher than average	Above average	Good	Outstanding

**Table 12** Data taken from the school's most recent 2009 OFSTED report

#### 4.3.7 *Key aspects of DP training that Tracey felt most positively about*

Tracey felt most positively about the following training areas.

##### *School atmosphere/ethos*

There was a warm air about the school as indicated by the close rapport students and staff portrayed. The school ethos was student-focussed and staff worked collaboratively to provide students with the best learning opportunities. Tracey felt integrated and settled 'quite quickly' into the school environment which subsequently diminished what anxieties she did have about her training prior to her DP.

##### *CPD training sessions*

Tracey felt the CPD sessions the school offered had eased her transition into the school. She felt lucky to have had a 'really good' professional mentor who had put her mind at ease through the delivery of insightful training sessions.

##### *Observing experienced teachers*

Tracey enjoyed observing other more experienced teachers across the school and focussed her observations on areas she wanted to 'work on' herself and improve which she found particularly 'useful'.

As time progressed, she had started ‘doing quite a lot of teaching’ and hoped her observations would continue, but opportunities had diminished due to imposed time constraints.

### ***Subject-mentor***

Tracey explained how the support given by her school-mentor was ‘most influential’ to her professional development at the initial stages of her training when she ‘wasn’t all that confident to start with’:

*‘my mentor in my first school played a big part in this, she was very approachable and would introduce me to other members of staff and help me get involved in other activities in school’.*

*‘we met every Friday...we had like an hour slot on a Friday...I only taught her lessons so she was always free you know to watch...she watched all of my lessons that I taught...and then I knew when she was free so she was quite happy for me to go and see her and’.*

### ***Good working relationships established with students & staff***

Tracey rapidly developed a positive rapport with her ‘really nice’ students and gained confidence in knowing they liked her lessons:

*‘I have taught a few lessons already and feel that they went pretty well and I really enjoyed them. Most of the students responded really well to me which was pleasing and I am looking forward to getting to know the students further’.*

Furthermore, she spoke fondly of the collegial relationships she had built and how her colleagues were key to her training experiences:

*‘I have really enjoyed working with my mentor and the other members of the science department and I am looking forward to building up these professional relationships further’.*

*‘I feel it [mentoring support and professional relationships established] was most important in my first placement as it allowed me to grow in confidence in the classroom and specific one-to-one advice helped me to deal with difficult students and develop my practice quickly and more effectively than I would have if I tried to do it alone. Gaining new ideas from colleagues in the department and from others around the school helped a lot’.*

Having ‘built up some really good relationships with the students’ she felt ‘quite disappointed’ at the prospect of having to leave the school and would ‘rather stay’.

### ***Evidencing Teacher standards***

Tracey expressed satisfaction with the tailored support received with evidencing the teacher standards. Both her and her school-mentor sat down and discussed ‘some of them in detail’ particularly those which she ‘didn’t understand’ and had difficulty locating evidence for.

### ***Teaching experience with Year 7 class***

A high point for Tracey was her experience with teaching her low ability Year 7 class when she had ‘cracked how to do practical’s with them’ and dealing with ‘behaviour management’ issues. Once she had conquered these areas, the experience of teaching the students became ‘much better’ and ‘easier’ and students ‘enjoyed’ the lessons more.

#### ***4.3.8 Key aspects of DP training that Tracey felt less positively about***

The following seven themes emerged from the data analysis.

#### ***Feeling anxious in the initial stages of DP***

Tracey felt apprehensive in the early stages of her DP. She voiced her concerns in the following comments:

*‘I have felt worried and anxious that what I was producing and teaching in the classroom was not going to be good enough. Not knowing the students and the teachers and the school’s procedures very well to begin with does not help very much’.*

*‘I do feel it is hard for a PGCE student to begin with as we are only really in school for 2 days a week and it is quite hard to settle in initially’.*

#### ***Professional mentor***

As time progressed on, Tracey became increasingly dissatisfied with the limited ‘one-on-one’ contact time she had with her professional mentor and ‘rarely saw him’. She would liked to have gone over the school policy on Every Child Matters ‘at the start of the course rather than later on’. Furthermore, no time slot was allocated for her to meet him individually and she only met him ‘twice in the whole time’ whilst in school. She later realised as a course stipulation, he was required to ‘come in and observe a lesson which he never did’. Futhermore, he wasn’t ‘very helpful’ in the following instance:

*‘one thing that did annoy me was my professional tutor...we didn't get any safe guarding information...about you know the school and I did try and chase him up on that on several occasions...and my mentor went and spoke to him on many occasions about it...I just don't like having to chase around you know after people to get things that you kind of expect to get’.*

Although her requests were ‘eventually’ fulfilled, it did make the process of ‘getting things done more difficult’ for her which hindered her progress at times.

#### ***Student behaviour***

Although Tracey’s teaching experiences had ‘been really positive’ and she ‘enjoyed teaching all of the classes’, she did encounter ‘some challenging behaviour’:

*'I have had a few bad lessons this half term, behaviour of students in these lessons was quite stressful to deal with, I do feel that the topic they were learning does impact largely on their engagement within lessons. I did not decide on the topic and so found this difficult'.*

### ***Lesson planning***

Lesson planning was one of the main areas Tracey drew attention to as an area of concern. She was apprehensive about leaving her lesson planning till last minute and then being required to alter them. She commented:

*'One thing I have struggled with the most is planning lessons, I would have like more support both from university and my school so I knew what they were after from the start to save me planning and then changing them'.*

*'I have struggled to be organised and get everything sorted on time, one thing that did not help this was the fact that I was trying to make every lesson amazing and was spending hours and hours planning. This made this process very stressful for me'.*

Though Tracey could seek advice, her mentor did not actively get involved in the process of compiling lesson plans with her. She was given a *'list of lessons...to be taught in a sequence'* and was left to *'get on with it'*. Although her mentor looked at her lesson plans in Friday meetings, *'she didn't really give any input'* or advice about what she had included and what else to include (e.g. differentiation and lesson timings).

### ***Observing other teachers***

Tracey had benefited from conducting lesson observations on other teachers and found it quite helpful. However, she *'didn't always get to watch the best teachers teach'* and felt it would have particularly benefited her had she observed those who dealt with behavioural issues on a regular basis. Although *'she didn't really need that much support'* in her DP, she felt such observations would become *'more influential'* in her next school-placement which she described as a *'challenging school'*.

### ***Evidencing Teacher standards***

Tracey's stress levels began to accumulate later on in her training when the process of evidencing the teacher standards became more prominent. She commented:

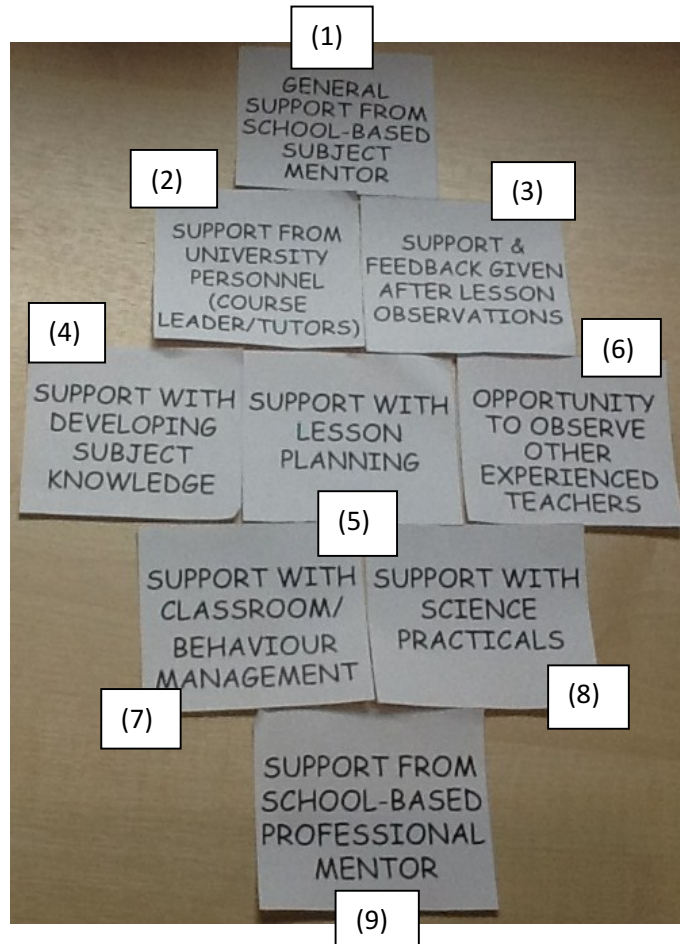
*'The whole collecting evidence part of the ITT is rather daunting as I find it very difficult to understand what evidence is and which QTS standards it meets. I do find trying to do this part quite difficult and rather stressful'.*

### ***Team teaching***

Tracey had the opportunity to team teach a couple of lessons per week which she felt ‘wasn't always that helpful’ because it made her feel ‘*a bit weird*’ about ‘*joining in*’ with ‘*someone else’s class*’.

### ***Diamond ranking responses***

Figure 16 presents Tracey’s diamond ranking responses which she provided during Interview 1 (December, 2011).



**Figure 16 Summary of Tracey’s diamond ranking responses of her experiences whilst in HEI & DP**

In addition, Table 13 below, summarises Tracey’s key training experiences whilst in her DP school. The reasons underpinning the arrangement of responses are also included.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
<b>Personal</b>	<ul style="list-style-type: none"> <li>•DR (8): Same as below</li> <li>•Mother was a science teacher</li> </ul>		<ul style="list-style-type: none"> <li>•Interview 1: personal worries over LP: 'quite a challenging school behaviour wise' ('disappointed to leave first placement')</li> <li>•DR (7): Poor student behaviour</li> <li>•Interview 1 (9): Same as below</li> <li>•Professional support (training needs only partially met)</li> </ul>	ZFM
<b>Professional</b>	<ul style="list-style-type: none"> <li>•DR (8): Same as below</li> </ul>		<ul style="list-style-type: none"> <li>•DR (4): 'Didn't get loads of support' with developing SK, only minimal support was offered</li> <li>•DR (5): 'Didn't get loads of support' with lesson planning (school expectations were unclear: - 'stressful' &amp; time consuming when attempting to plan 'amazing' lessons which impacted on other areas of teaching practice). SM provided little 'input' with lesson plans (more active guidance would have been 'helpful')</li> <li>•DR (9): Only met PM 'twice the whole time' DP school (disappointed). Support was 'least influential' (wasn't very helpful)</li> <li>•Interview 1: Difficulties in settling into school initially when in school only 2 days a week (praxis shock)</li> <li>•Interview 1: Felt anxious/worried: linked to new environment, school procedures, students, teachers &amp; lessons/teaching not meeting school standards</li> <li>•Interview 1: Some 'challenging behaviour' &amp; student engagement was influenced by specific science topic</li> <li>•Professional support (needs were only partially met)</li> <li>•Key areas of training Tracey was dissatisfied with: modelling effective science teaching strategies, scientific enquiry skills, subject knowledge (curriculum delivery), subject knowledge (curriculum delivery), modelling enthusiasm for science and science teaching, understanding learners, training environment was not a stable learning environment</li> </ul>	ZFM ZFM/ZPA
<b>Situated</b>	<ul style="list-style-type: none"> <li>•DR (1): Overall support from SM good (most influential initially when little confidence) &amp; 'expectations met'. Enjoyed working with SM (good professional working relationship established)</li> <li>•DR (2): University support consistent &amp; great. Observations by PGCE leader reassuring (second opinion that was progressing: confidence boost)</li> <li>•DR (3): SM provided constructive feedback after lesson observations (e.g. to be more assertive in the classroom)</li> <li>•DR (8): Prior career experiences provided confidence with executing practical work (didn't require as much support). Victorious in 'cracking' practical work with low set Year 7 class</li> <li>•Interview 1: School geared towards meeting students' individual needs (good school culture) &amp; eventually felt like she 'fitted in' &amp; integrated 'quite quickly'. Looked forward to getting to know students better (enjoyed school environment &amp; time with students)</li> <li>•Interview 1: Students provided 'really nice' feedback (lessons progressed well &amp; both Lucy &amp; students enjoyed these)</li> <li>•Interview 1: Enjoyed teaching her classes ('kids were so nice')</li> <li>•Interview 1 Built 'really good relationships with students'</li> <li>•Interview 1 'Support with lesson planning' (moderately influential – needed some advice)</li> <li>•Interview 1 DR(4): 'Support with subject-knowledge' (moderately influential)</li> <li>•Key areas of training Tracey was satisfied with: assessment, Pedagogic content knowledge</li> </ul>	ZFM ZFM/ZPA ZPA ZPA		
<b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b>				
<ul style="list-style-type: none"> <li>•DR (6): Opportunity to observe more experienced teachers was there at start of the placement, but 'didn't always get to watch the best teachers teach'. Would have been more useful to observe outstanding teachers using 'better techniques' (ZFM/ZPA)</li> <li>•DR (7): Didn't really need support with BM ('kids were quite nice'). University session on sharing BM techniques was helpful. 'Cracked' BM with low set Year 7. Also taught some bad lessons due to poor student behaviour but was a productive learning journey (ZFM/ZPA)</li> </ul>				

**Table 13 Summary of overall key findings in relation to Tracey's training experiences whilst in her DP school. This table also encapsulates other relevant findings which have not been reported extensively above. This case study reveals both positive & negative experiences were key to developing her teacher identity.**

#### 4.3.9 School placement 2: an introduction to Tracey's LP school context

Tracey's LP was based at a 'larger than average-sized' academy secondary school and catered for mixed 11-18 year olds with number of students enrolled having seen a significant increase in recent years. This was the school she attended herself as a student and where her mother worked as a science teacher. An overall OFSTED rating of outstanding was awarded to the school in 2008. Further details about the school are encapsulated in Table 14 below: -

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
White British Heritage	Very low	–	28%	Lower than average	Good	Outstanding

Table 14 Data taken from the school's 2008 OFSTED report

#### 4.3.10 Key aspects of LP training that Tracey felt most positively about

Tracey 'enjoyed' 'parts' of her LP, highlighting the following key areas which she felt positively about.

##### **School induction**

The school had offered a 'full-day' induction which included an 'introduction', 'a tour around the school' which Tracey found useful and helped her feel a part of the school community immediately:

*'we got like a pack with all the guidelines and stuff in...for the staff...we got our badges, our laptops and all that kind of stuff...and then every week on a Wednesday, we have 2 hours a week of different sessions...so we've had like Every Child Matters and...different things like XXXX instructors and marking and things like that so...it's been good in that respect'.*

In addition, 'different sessions' were delivered which she found stimulating:

*'So we've had stuff on like Kagan structures and ideas for that and we've had...like improving boys' achievement and attainment and stuff like that so...it's been quite nice really...had quite a wide range'.*



### ***Subject-mentor: support & feedback***

Tracey felt comfortable approaching her subject-mentor when needing advice or feedback and took comfort from knowing her mentor could relate to her training experiences:

*'I still go and speak to her [subject-mentor] about other lessons and she does give me a lot of good feedback and it's funny because the same things that I have to work on is the stuff that she had to work on as a student as well...[like] being assertive...so it's quite nice in that respect cuz she can give me that kind of advice'.*

At times when her mentor was 'quite busy', she would 'make time' for her by offering her to 'go and sit in her room after school' and would 'go through stuff' and offering pointers for improvements.

### ***Team teaching***

Tracey team taught 'quite a tricky' Y11 Applied Science class 'one lesson a week' with her mentor. Whilst she taught the class, her mentor assisted with managing student behaviour which helped Tracey immensely in better engaging students and keeping them on task and learning new behavioural strategies.

### ***Lesson observation by HEI tutor***

Tracey referred to her lesson observation by her HEI tutor as being one of her high points with it having gone 'really well':

*'my observation by my university mentor went really well. He observed a Friday class who like to misbehave, but it went ok'.*

*'it was with a very tricky class that don't behave at all but...they were alright when I was there...one of my main things is using the behavioural code and stuff like that and I managed to do it a bit more with that class and it had a better effect. I think my biggest thing is just realising that I can actually do it rather than just being negative about it yeah'.*

### ***Access to practical equipment***

The school had 'quite a big' well-resourced science department with 'three separate prep rooms' and 'three separate sets of technicians which was 'quite good'. Technicians would always offer to demo difficult experiments and would 'always go through' it step by step.

### ***Enjoyed middle school experience***

Tracey really enjoyed her middle school experience where she worked with Y6 students 'one-on-one' and as 'smaller groups' which was a 'nice' opportunity to observe the students learning and teacher's approach in delivering the lesson.

#### **4.3.11 Key aspects of LP training that Tracey felt less positively about**

The following areas were flagged.

##### ***Apprehensive about entering long practice***

Tracey felt anxious and under pressure about entering her LP not being familiar with the school, students and staff and knowing that the school was well-known for being quite a challenging school behavioural wise:

*'I have felt quite worried about being in the new school and felt slightly uneasy' ... I do think it is hard going into a new school which is completely different to the first one is quite hard to follow your progress you were making in the first school, I feel under a bit of pressure not to disappoint people there because my report was so good from my first placement'.*

Hence, she felt her *'behaviour management was definately something to work on'* once in school. She had been reading around strategies she could implement and sought advice and 'tips' from her DP mentor and HEI tutor who had 'worked in a few challenging schools in the past'. A NQT session on behaviour management was particularly useful in gaining resources and insights into 'what techniques other people used'.

##### ***School & department atmosphere/ethos***

The atmosphere and ethos of the science department and school as a whole was *'definitely very different'* compared to Tracey's DP school. The school atmosphere felt *'cold'* and *'business-like'* with it being *'geared towards getting the results'* and focussing on keeping the school *'status quite high'*. She found it somewhat difficult to fit in having had gained a bad impression of the school from the outset. For instance, staff in the department did not set a good example and seemed to be quite rude and unprofessional:

*'the head of [subject department anonymised] and a couple of other teachers just will clash with the rest of the staff...like on purpose...like I was in a staff meeting and they'll just shout across the room...like 'I'm not doing that' or 'I already do this'...you know they'll just pitch in and then be really negative towards everyone'.*

She further added:

*'I have found it quite difficult to fit into my new school, the staff are all really nice but there is a lot of bitchiness in the department with staff talking about each other behind their backs. This is quite off putting going into a new department and very unprofessional. This is quite off putting when trying to make yourself familiar within such a large department with staff, students and layout of the school. I am hoping this will get better once I am in the school full*

*time after half term and that it was purely the stress of new responsibilities getting to my mentor'.*

*'There was also an uneasiness in the department and you could tell members of staff were talking about you behind your back as they would often come up and ask if you were ok at random occasions, one of those being when I was running science club and I ended up getting upset and had to finish it knowing they were talking about me and that I had an uncomfortable meeting to come'.*

In light of these experiences, Tracey knew she would not miss the school once she had left and did not feel she would work in such a department and didn't *'regard it as highly'*.

### ***Support from subject-mentor***

Tracey described her mentor as being 'nice enough' but also at times felt she could *'be very short and unapproachable at times'*. Her mentor was 'just new' to the role not having done it before and did try to be *'really helpful'*. She had weekly meetings with her mentor although the day meetings were held did not suit Tracey's training needs:

*'[I] sit down with her every Monday morning and it's not really good cuz...in my...other placement...it was a Friday and it...you could reflect on the whole week but by the time I think it gets to Monday morning, you kind of forget...so I don't think the sessions are as in depth as you know they were in my previous school'.*

However, with her mentor also 'taking on the role of second in department also' and with having some staff on maternity leave, Tracey did not feel she could invest quality time in her. Furthermore, when encountering difficulties with a particular teacher (see below), Tracey voiced how her mentor had failed to understand her concerns and subsequently didn't *'feel like speaking to her'*. She responded to the following question:

**Interviewer:** *Do you feel that the overall mentoring support you received throughout your training helped you develop your professional identity?*

**Tracey:** *'My second mentor didn't really help at all with developing this further in my second placement though, I did not feel she was very professional she would gossip about other members of staff to me and in front of me with her colleagues. She would also complain about other PGCE students which was difficult to deal with as it made me feel like she would be talking about me behind my back too'.*

### ***Professional mentor***

Tracey 'rarely' saw her professional mentor once her training was in full swing. She expressed how this was a disappointment having had experienced the same in her DP.

### ***Strained relationship with a teacher***

The following comment was made when Tracey was asked about her main low point during her LP, describing it as her 'worst experience':

*'I've had a bit of trouble with a teacher at school who...I teach a top set triple [set...subject anonymised] Year 10 class and my specialism's biology and she's quite demanding and wanted...all the resources, all the lesson plans and stuff in advance...and then just didn't give you any feedback... she didn't really help me...the one time I asked her for feedback, she was just like 'ahh you need to improve your explanations'.*

*'she already made me and the other ITT students feel very uncomfortable and had made it her mission to get rid of one of the science students before the Easter holidays. She observed one of my lessons and wrote down everything negative about the lesson, did not comment on one positive thing. She then called me in for a meeting with her and sat there and questioned every little thing I had done in the lesson and wanted an explanation for it all. Needless to say this left me feeling on edge, uncomfortable and uneasy around her'.*

*'she's one of those people that...strains herself to smile occasionally...and she'll sit and like she's judging ya...I hate her'.*

The situation deteriorated further when learning her mentor was '*best friends with her*' which left her feeling unable '*to go and tell her everything*'. She became increasingly anxious which '*influenced her levels of stress quite a lot*' and felt frequently '*tired*' and questioned whether she needed to stop being so hard on herself. Tracey did endeavour to reconcile the situation herself in a professional manner by communicating her concerns about how taught topics were '*out of her specialism*'. This failed to resolve the situation but fortunately for Tracey, knew she could confide in her PGCE course leader had her school mentor continued to be '*horrible*' with the '*negative feedback*'. However, she would have liked more support with this situation in school, but took comfort from conversing with '*other ICT student-teachers*' who could relate with the realities of teaching.

Tracey did consider the prospect of leaving her course '2 weeks before the end' after encountering another incident with the same teacher and 'walked out...midweek'. She commented:

*'I had a really horrible day, had an lesson observation by this teacher that has been horrible from the start...and she...wrote down everything negative that happened in my lesson, nothing good...like didn't even watch the whole lesson, wrote everything negative down...so there's me like in science club running it by myself because everyone else has dropped me in it, so there's*

*just me there and...and then I came back from outside cuz we had done rockets or something, and she [mentor] was like oh I need to speak to ya and just sat there...and was just like WHY did you do this WHY...like right in my face...it's just like really confrontational... it was horrible...I was literally like...didn't want to go back and then the next day it wasn't any better either'.*

Tracey took comfort from learning similar issues had been experienced by a previous student-teacher with the teacher in question. She had been 'really hard on them too and commented:

*'[the PGCE course leader] had to go in and take the student out the school because she was so nasty to him and...she sort of saw things as a hoop to jump through...an obstacle to get around rather than being positive or anything...but knowing that...has that helped you knowing that it's nothing personal'.*

### **Subject knowledge**

Tracey described her Physics knowledge as 'quite poor' and was gradually getting to grips with Chemistry (multiple topics) although 'sometimes not quick enough'. Though she spoke positively about her subject-knowledge, at times she felt intimidated by her top set Year 10 Chemistry class because of the difficult questions they asked:

*'They [students] will ask you really tricky questions...and I need to learn to...you know like to defer the questions...or put them back on them kind of thing...rather than me try and go erm erm'.*

Tracey attempted to avoid students questions in the hope of not portraying herself as a weak teacher. This potentially not only had detrimental impacts on her confidence and how she felt about herself as a science teacher but also hindered her students learning. Similarly this was also the case with her A'level classes:

*Interviewer: During your training, did you ever feel anxious about your scientific subject knowledge and/or lacked confidence in your ability?*

*Tracey: Yes, when teaching A level in both placements. It made me nervous about being asked difficult questions I could not answer, (only happened once). Lacked confidence in my ability throughout placements, especially in the second placement as I felt others doubted me too. This happened more towards the end of my second placement and made me feel very anxious and uncomfortable.*

She also '*had quite a lot of misconceptions*' with the physics concepts of '*conduction*' and particularly '*convection and radiation*'. She also '*found parallax difficult to teach*', a concept which somewhat '*confused*' her. Interestingly, she also struggled with multiple topics of biology.

### ***Behaviour management***

Tracey raised concerns about the behaviour management at the school:

*'I am slightly worried that behaviour management is going to be more of an issue in this school. Although they do have a strict PRAISE code in place, they are a lot more relaxed about uniform and teachers do not always follow rules they expect students to, so I think students are sent mixed messages at times'*.

She therefore found it more difficult to discipline students because they were misbehaving across the school knowing they would get away with it.

### ***Teacher standards***

Tracey expressed mixed feelings about evidencing the teacher standards stating it was '*quite nice for it [structure] to be open, but conversely felt the guidance she did receive was quite vague*'. Hence, she would have preferred a more focussed approach when '*starting out*' on her training journey. There was '*not really*' any in-depth discussions, leaving Tracey with '*no idea really on how to structure it properly*'. The school mentor only looked through evidence files once which Tracey felt unhappy about.

### ***Access to practical equipment***

The science department lacked simple practical equipment such as '*temperature probes*' and devices which monitored '*carbon dioxide*' and '*oxygen levels*' which made it '*just a bit difficult at times*' from a planning and teaching perspective.

### ***ICT training***

Tracey highlighted how whiteboard training in the school was delayed, making it difficult to deliver lessons. This proved to be somewhat problematic because of being unfamiliar with the ICT equipment and software used at the school.

### ***Professional workload***

Tracey drew attention to her 'mounting' workload and how it became 'harder' to manage.

### ***Final month of LP***

The final month of her training was particularly tough, leaving her feeling 'very uncomfortable', 'under a lot of pressure' and 'felt very down'. She commented:

*'I was very stressed and was questioning whether or not to leave the course at this stage in the training, something I did not expect to ever think. It was made more stressful by the fact that I was applying for jobs and going for interviews in this time too'.*

She referred to the following experience as being her lowest point:

*'I did not have a great time at my placement school between Easter and June, I was ill after the Easter holidays and was off for a few days, when I went back to school I felt under pressure from my subject mentor and some of the other teachers whose classes I was teaching...everyone was bombarding me with stuff that I had to do...and they wanted me to do like 3 observations in that week...I was still clearly ill and people were commenting on how ill I looked. My mentor said that she wanted outstanding lesson plans for all the lessons I was teaching in this one week and wanted me to get outstanding lesson observations too. She threatened me with marking my report down if I did not do all of these things. So being put under this pressure I did not feel comfortable in school and was not sleeping properly, not helping my recovery'.*

### ***Lesson planning & pacing of activities***

Tracey felt 'worried about getting back into lesson planning' when commencing her LP school:

*'I feel a bit rusty at doing it and am worried that as lessons are only 45/50 minutes long I will struggle to complete starter, activity and plenary within the time limits. I am hoping this will come with practice and hopefully pretty quickly so as not to annoy other teachers'.*

The teacher with whom she had problems with did not help the situation and made her emotionally vulnerable as reflected in the following comment:

*'She [school mentor] is very cold and gives no feedback on your lessons/lesson plans. She stresses me out and I stress out over planning her lessons. I have cried a few times over these lessons...when she's watching your lessons and she'll kind of harp up and like you know pitch into your lesson and it's kind of a bit off putting...so I've been getting a bit stressed about her lessons...I think that has a detrimental effect on my other lessons that I do as well because I spend so much time planning hers...then, I've got less time to do the rest of them so... I'm just trying to just go with it at the minute'.*

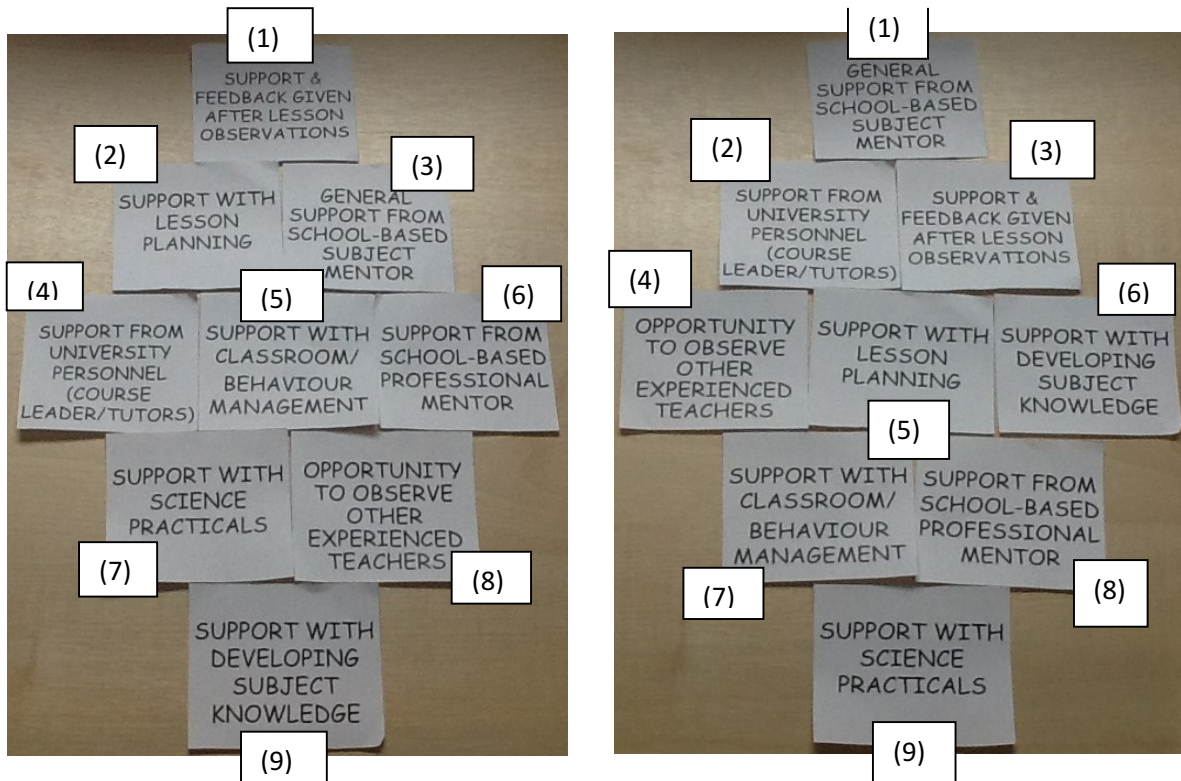
She also identified the pacing of her lessons as a problematic area of her training because of struggling to fit activities into 45 minute lessons.

**Diamond ranking responses**

Figure 17 below, presents Tracey’s diamond ranking responses from Interview 3 (June 2012) which are cross-referenced to Table 15 (p. 115-116) which presents a summary of her overall experiences throughout her training.

**Interview 2: Key training experiences during early stages of Tracey’s LP (Term 2: February -April)**

**Interview 3: Key training experiences during later stages of Tracey’s LP (Term 3: April-June)**



**Figure 17 Summary of Tracey’s experiences in 9 training areas of interest during LP**



IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED TRACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
Personal	<ul style="list-style-type: none"> <li>• Mother was a science teacher</li> </ul>		<ul style="list-style-type: none"> <li>• Felt less positive (nothing went well &amp; returned from ill health due to a heavy workload) ('big jump' from DP to LP) which was 'stressful' &amp; made her feel tired and very down)</li> <li>• Worried about 'disappointing people' &amp; being 'judged' by not meeting the same high standards/progress made in DP school (felt 'under pressure')</li> <li>• Two weeks prior to course ending, she questioned whether to leave the course (negatively impacted on her health)</li> </ul>	
Professional	<ul style="list-style-type: none"> <li>• <b>DR (3):</b> Same as below</li> <li>• <b>DR (6):</b> Same as below</li> <li>• <b>DR (8):</b> Same as below</li> </ul>		<ul style="list-style-type: none"> <li>• <b>DR (5):</b> same as below</li> <li>• <b>DR (6):</b> same as below</li> <li>• <b>DR (7):</b> same as below</li> <li>• <b>DR (8):</b> same as below</li> <li>• School more geared towards generating good grades (business orientated)</li> <li>• Unprofessional department</li> <li>• Monday was timetabled for weekly meetings with SM (wasn't great as there was little time to reflect-was so busy through the week &amp; felt sessions lacked depth)</li> <li>• Didn't get smart board training</li> <li>• Support from SM (needs only partially met)</li> <li>• Professional support (needs were only partially met)</li> </ul>	<p>ZFM</p> <p>ZFM/ZPA ZFM/ZPA</p> <p>ZFM/ZPA ZFM ZFM</p>
Situating	<ul style="list-style-type: none"> <li>• <b>DR (1):</b> Lesson observation by university mentor went 'really well' &amp; positive feedback was received (with a difficult class on a Friday!).</li> <li>• <b>DR (3):</b> SM 'seemed nice enough' &amp; attended 'new mentors' professional session delivered in university (better prepared SM on what mentoring support to offer)</li> <li>• <b>DR (4) &amp; DR (2):</b> Support from PGCE course leader &amp; university personnel was consistent: - promptly removed her from her placement &amp; transferred her to another school</li> <li>• <b>DR (6):</b> Felt 'lucky' as PM delivered 'really good' training sessions at the start of LP placement</li> <li>• <b>DR (3):</b> Support &amp; feedback after lesson observations was available &amp; helpful</li> <li>• <b>Interviews 2/3 DR (4):</b> There were opportunities to observe other teachers (6<sup>th</sup> form biology &amp; KS4 Physics) to improve confidence. Enjoyed the week in middle school (observing &amp; working with KS2 students)</li> </ul>	<p>ZFM</p> <p>ZFM/ZPA</p> <p>ZFM</p> <p>ZPA</p> <p>ZFM</p> <p>ZFM</p>	<ul style="list-style-type: none"> <li>• <b>DR (5):</b> Concerns about BM raised: lack of uniformity in staff following BM policy- 'a lot more relaxed' &amp; 'mixed messages' sent to students</li> <li>• <b>DR (7):</b> Lack of science practical equipment (e.g. 'simple things like...temperature probes')</li> <li>• <b>DR (8):</b> Opportunities to observe experienced teachers diminished as DP &amp; LP progressed due to teaching timetable/other duties</li> <li>• <b>DR (6):</b> Would have liked to have taught more KS4 physics but was not possible (timetabling constraints)</li> <li>• <b>DR (8):</b> Later on 'rarely saw' PM &amp; often had to 'chase' for things (not 'helpful'). Expectations were not met &amp; more 1-1 time was needed</li> <li>• School more geared towards generating good grades (business-like academy)</li> </ul>	<p>ZFM</p> <p>ZFM</p> <p>ZFM/ZPA</p> <p>ZFM/ZPA</p> <p>ZFM/ZPA</p>

<p>•Interviews 3 DR (5): Basic support with lesson planning available in LP school, but needed less of it as her confidence &amp; wealth of experiences grew</p> <p>•Interviews 3 DR (9): Felt confident in doing practical's &amp; didn't need support (all resources available)</p>	<p>ZFM</p>	<p>•Difficulties fitting into new school &amp; settling in initially: unprofessional department which created an uneasy atmosphere and difficult environment to work in</p> <p>•Struggled with teacher of YR10 class teacher ('very cold' persona, 'demanding' &amp; judgmental, no or negative feedback on lessons/plans. Stressed 'over planning her lesson' &amp; was emotionally vulnerable ('cried a few times'). SM was also best friends with the teacher, which made the situation more awkward</p> <p>•SM only looked at QTS files once because of time constraints mentioned above &amp; she was taken out of placement a week early to allow University tutors to check through files</p> <p>•Didn't get smart board training</p> <p>•Didn't enjoy team teaching because it 'felt weird' joining in with somebody else's class</p> <p>•Key areas of training Tracey was dissatisfied with: training environment was not a stable learning environment</p> <p>•Professional support (needs were only partially met)</p>	<p>ZFM</p> <p>ZFM/ZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p>
<p><b>MIXTURE OF BOTH POSITIVE &amp; LESS POSITIVE EXPERIENCES</b></p> <p>•Interviews 2 DR (2): Worried about getting back into lesson planning: - 'rusty' area (e.g. time consuming, lesson timings, anxious about 'annoying other teachers'). Struggled to fit all activities in but support was available</p> <p>•Interviews 2 DR (9): SK improving but not as quickly as she would have hoped (had some support)</p> <p>•Interviews 3 DR (1): SM was second in department &amp; had time pressures (appeared 'short' &amp; 'unapproachable at times' - 'off putting', felt 'uneasy') but tried to help &amp; support was influential</p>			

**Table 15** Interview 2: Summary of Tracey's key experiences during her LP school (Terms 2: January-March). As evident from the table, Tracey's training experiences were predominantly mapped on to the situated dimension of identity. She appeared to have more negative experiences in her LP school and really felt that the pressure was on. Her struggles with a particular teacher did not help with her confidence and this issue could have been rectified early by the school. Luckily, the HEI-tutor managed to resolve the issue but the message here is that schools need to play more of an active role to dissolve such issues for trainees' and ensure staff portray a professional manner at all times. The tensions Tracey encountered certainly inhibited her progress and subsequently negatively impacted on her confidence and how she felt about her own evolving identity as a science teacher. Hence, her teacher identity appeared to experience instability between identity dimensions throughout her training journey.

#### ***4.3.12 How Tracey felt about her overall training journey***

On the whole, Tracey's training expectations 'were met' and as expected she felt like she had been 'thrown in the deep end' at particular points of her training. She described her training experiences as being 'eventful and very stressful at times' although she particularly 'enjoyed' her first school placement. She did 'not regret' her decision to become a teacher and felt 'it was a worthwhile thing to do'. She felt a sense of achievement 'getting to the end' of the journey which felt 'nice'. She highlighted the following training areas she wished to focus on during her NQT year:

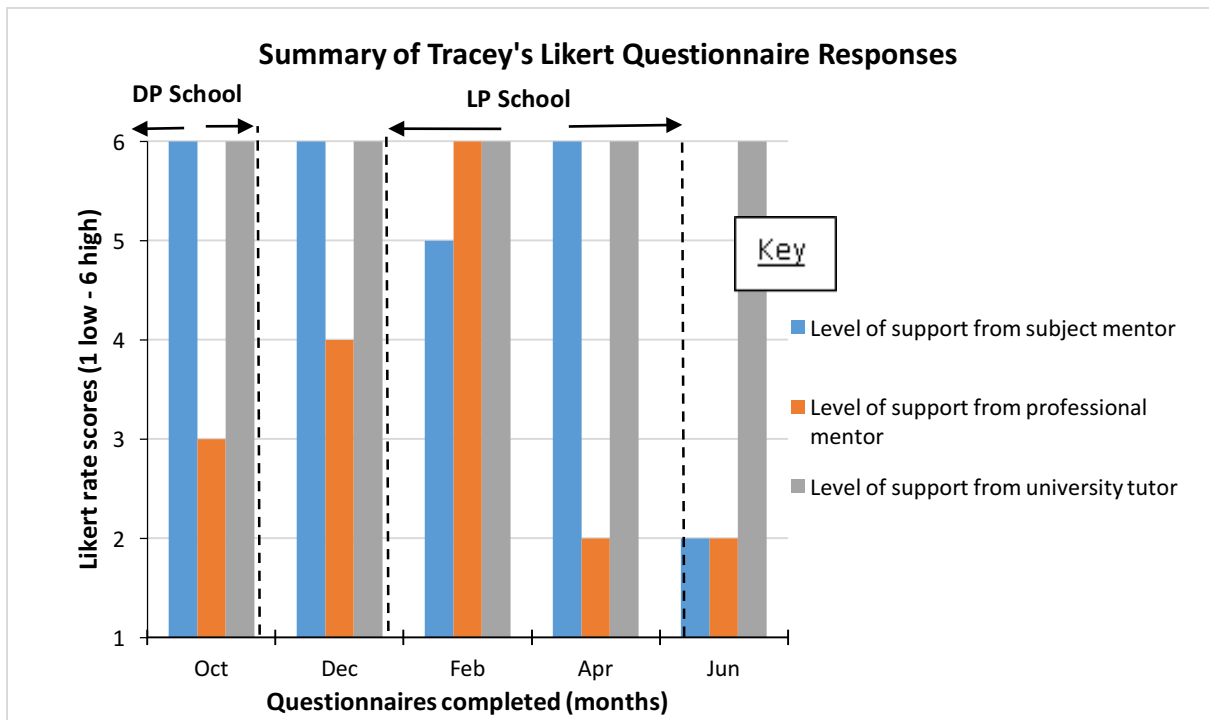
- Assessment (peer, self, formative and summative)
- Accelerated Learning Programme
- Action research
- Behaviour management
- Differentiation
- EAL/SEN

#### ***4.3.13 Overall level of support Tracey received from her PGCE tutor, SM's & PM's***

This section now provides a snapshot insight on how Tracey rated her:

- overall training experiences
- perceived teaching progress, satisfaction with her training, if expectations for teacher development were met and overall support received from PGCE tutor, SM & PM

at five points of her training which is shown in Graph 3 below.

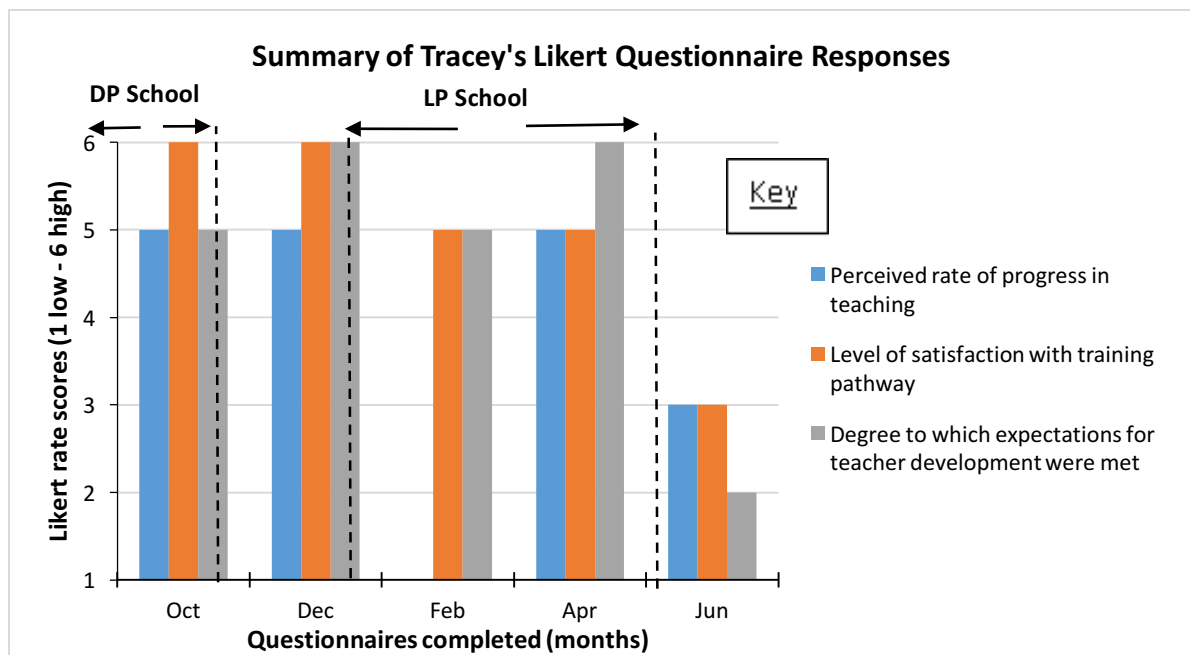


**Graph 3** Tracey's self-rated support from PGCE tutor, SM's & PM's throughout her training year

The bar chart clearly shows the discrepancy in the level of support received between her two placement schools which mirrors the findings previously reported. The finding confirms how importance support from HEI personnel was in Tracey's decision to remain on the course.

**4.3.14** *Tracey's self-rated teaching progress, satisfaction with training pathway & if expectations for teacher development were met*

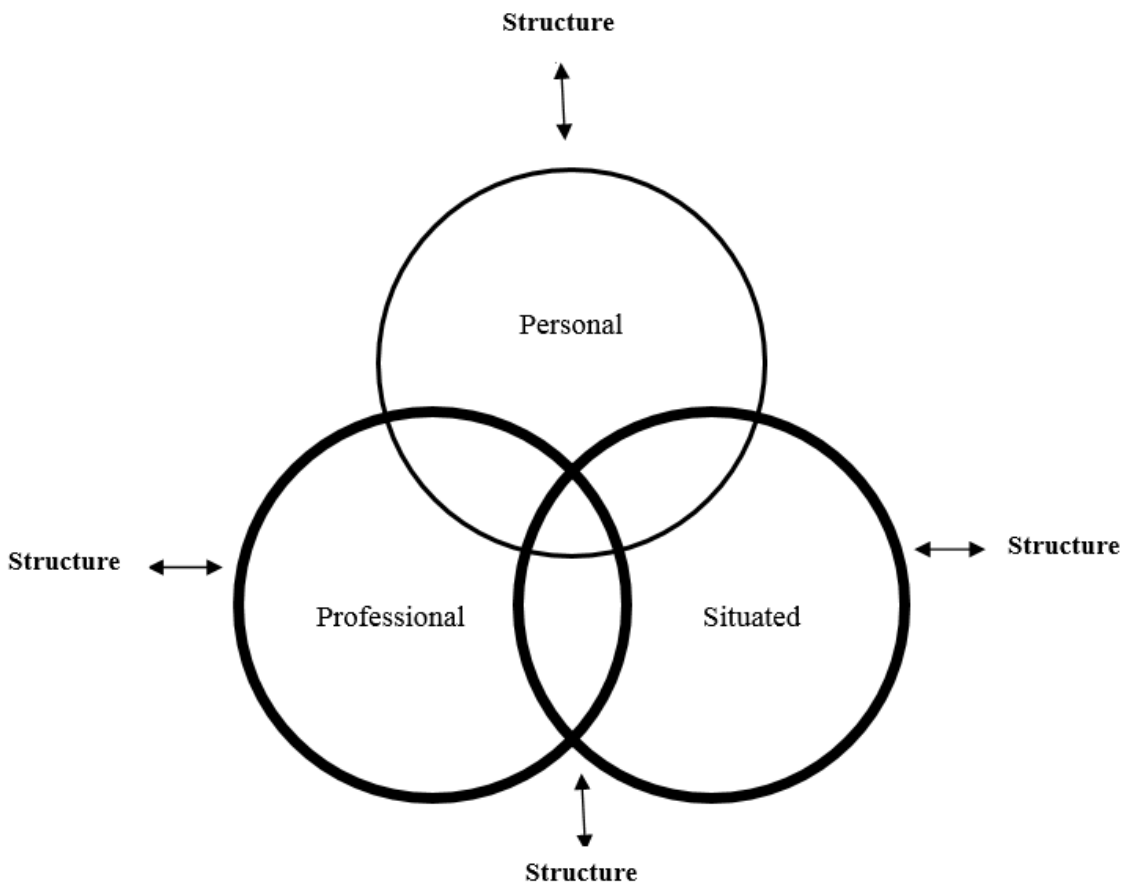
Graph 4 (p. 118) clearly shows how difficulties with a particular teacher (see Section 4.3.11, p. 108) coupled with insufficient support from her LP school-mentor impacted detrimentally on her self-perceived teaching progress. Hence, it was not surprising that Tracey's expectations for teacher development were not adequately met towards the end of her training in June.



**Graph 4** Tracey's self-rated teaching progress, satisfaction with training pathway & degree to which expectations were met.

#### 4.3.15 Overall teacher identity scenario that Tracey appeared to experience

The findings somewhat resembled scenario 3 of Day & Kington's (2008) identity model (Figure 18, p. 120). The case study was exemplar of a ST who was being negatively influenced professionally and was also experiencing to some degree a negative situated dimension. Thus, the professional (relationship with staff) and situated dimensions of identity appeared to exercise the most dominance. This put pressure on the personal dimension (distorted it) by having a knock-on-effect on Tracey's personal life in terms of her emotional and physical well-being and work-life balance. However, she successfully managed these fluctuations with the support mechanisms offered by university and her own commitment in wanting to succeed. Tracey was able to subjugate her professional and situated experiences to accommodate for the personal dimension. This was accomplished through her accepting and tolerating the imbalances she experienced. In doing so, she was able to manage work-life tensions although she felt less positive about her well-being. Tracey found that the lack of professional support predominantly in her LP school context had the biggest negative impact on how she felt about her training experiences.



**Figure 18** Tracey’s experiences were characteristic of Scenario 3 of Day & Kington’s (2008) teacher identity model with two dominant identity dimensions

At the end of her training journey she commented:

*‘I still feel more like a science teacher than a teacher in general, I would like to think that in 5 years’ time I would feel more like a mixture of both, combining general and science pedagogy’.*

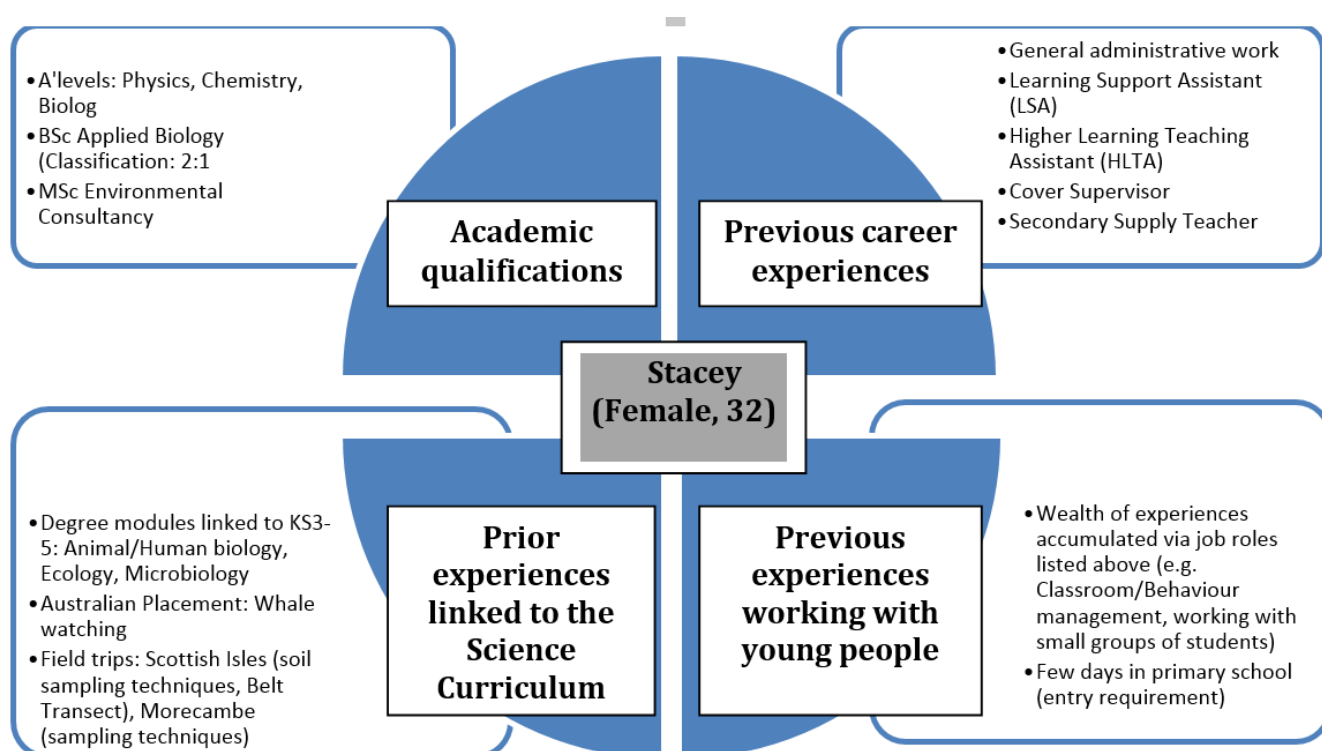
*‘I didn’t feel like a teacher at the start...I probably didn’t most of the way through the course, you kind of feel like weird like...someone’s gonna walk in the classroom and be like who are you like...watching over you...like what are you doing in here...at the minute I kind of feel weird...I think once I get a job, I’ll feel more like I am a teacher...but at the minute because I’m kind of in limbo...almost’.*

## 4.4 Stacey's Case Study

This section presents key findings from Stacey's case study with a brief introduction presented below.

### 4.4.1 Stacey, an introduction

The relevant background experiences and credentials for Stacey are summarised in Figure 20 below.



**Figure 20** Brief insights into Stacey's prior life experiences

Stacey was a mature ST who had apt academic abilities. She spoke fondly of her undergraduate degree and relayed how she had *'always been academic'* and *'slightly preferred the theory'* side of her degree. She also enjoyed the practical components her course offered when on field trips:

*'I really liked handling the...marine animals which you could go out on a research vessel...you could go out and you could catch things and then later take them back, examine them and then I did, when I did my dissertation, that was a very practical based one...I had to measure seven hundred of different fish and weigh them..'*

Her GCSEs and A'level qualifications also provided her with a solid knowledge foundation 'more so than [her] degree' with it being similar to what she was teaching her own students. Furthermore, she had a wealth of prior experiences working with young people in her previous career roles as a teaching

assistant, cover supervisor and supply teacher in various secondary school institutions. Stacey had a Masters in Environmental Consultancy which at the time she felt was necessary to fulfil her initial career aspiration to work in academic research. However, reminiscing back, she somewhat regretted doing it due to being set back with debt. She did value the qualification in terms of it contributing towards securing a middle-management position in the future.

#### **4.4.2 *Reasons underpinning the decision to enter the teaching profession***

The teaching profession was a career path Stacey fell into through her growing enjoyment of working with young people. This love was ignited whilst working in the career roles above as the following comments illuminate:

*'[I] fell into supply work, enjoyed it and decided I would eventually go for my teaching and what I did for a few years though is...LSA work, cover supervisor, and then I did my HLTA. [I was] taking full classes and basically delivering work that the teacher had left for them so that's where I got all my experience with behavioural management...with the learning support, it was more one to one...me taking small groups for numeracy and literacy'.*

*'I thought well, I might as well do the whole thing and become a teacher. I thought if I am going to be in a classroom situation, I'm gonna do it properly, I'm gonna have the qualification'.*

Interestingly, prior to these career experiences, she described how she had never envisaged herself working with young people:

*'before I ever went into supply, I don't think I'd ever talked to a kid, it was really strange because it's the last thing I ever seen myself doing...but I enjoyed it, especially with the older ones which I didn't expect'.*

Her experiences were imperative as she commented; *'I don't think I could have coped if I hadn't had previous experience with young people'.*

#### **4.4.3 *Stacey's own learning experiences & the kind of teacher she aspired to be***

In hindsight, Stacey's own learning experiences as a student in school/university (undergraduate/postgraduate degree) were predominantly positive. Academically she was a highflyer and 'loved' science. Physics particularly *'fascinated'* her, but felt her mathematical skills let her down which subsequently hindered her from taking it at degree level. Alternatively, she did an BSc Applied Biology with a love for animals being a *'main interest'*.



Having such positive prior academic experiences previously had somewhat set the bar high in terms of the great expectations she set herself. The struggles is then encountered in her ITT knocked her confidence, having not experienced such difficulties before. Hence, her struggles had a knock on effect on how she felt about her professional identity as a science teacher. She had began to see how her own positive schooling experiences were also creating limitations:

*'To be honest, it [her own learning experiences] has hindered me, I was always academically a high flyer and had been told in my main school that I struggled to bring it [subject knowledge] down to the level of the kids I am teaching'.*

When of school-age, no teacher stood out who she felt inspired her to become a teacher. Nevertheless, her positive experiences as a learner she felt were attributable 'partly due to good teachers' who depicted qualities such as *'imagination, being a bit eccentric [and] being resilient*. Such teachers were effective at engaging students through fun interactive science which she felt was essential in combating the prevalent issue of *'many kids hating science with no good reason'*. Hence, she wished to develop such strengths herself and to portray a stronger teacher presence in the classroom. She felt this would counteract the issue of students thinking *'here is a new teacher lets see how far we can push it'*.

In terms of her future career aspirations, Stacey expressed her broader interests in wanting to branch out into 'the pastoral side' (e.g. Head of Year) or by 'working in an exclusion unit... perhaps working on more than just science – alternative provision'. In all these future goals, she emphasised how it was important to her to be in a school which allowed her to work in her 'own way', being an advocate of active learning.

#### **4.4.4 Reasons for choosing the GTP route**

The decision to embark on the GTP route was *'purely financial'* with having 'a flat to pay for'. It was the most suitable option for her although interestingly her first choice was the PGCE:

*'I knew I had to do a GTP cuz that was the only way I could earn, so I just found the nearest provider' ... 'if I could afford to do it, I would have preferred to do a PGCE because I think you get more theory'.*

#### **4.4.5 Key aspects of DRB training Stacey felt most positively about**

Two themes emerged which Stacey felt most positive about in relation to the DRB training she received which are reported next.

##### ***Support from external DRB tutor***

Stacey found the support from her external tutor comforting when she 'wasn't doing well' in her training. She explained how she was put 'on a internal action plan' and how he offered constructive 'ideas' in two one-to-one 'sit down meeting' on ways to actively improve. She found this professional support soothing as he did 'not put too much pressure' on her at this emotionally challenging time. This provided her with immediate strength to fight on and conquer the struggles that lay ahead.

##### ***Teaching resources provided in subject-knowledge sessions (chemistry & physics)***

Stacey felt 'confident' about her subject-knowledge for all three science specialisms and felt comfortable 'teaching it at Key Stage 4 level:

*'I've always thought it [subject-knowledge] was good, I'm not being big headed there but if you look at my GCSE's, A'levels and Degree, they're good'.*

Whilst training, she particularly found the subject-knowledge sessions delivered by the DRB useful. She spoke highly of the teaching resources that were suggested and was specifically impressed with resources the Institute of Physics (IoP) had sent her for free:

*'you basically give your email and they [IoP] send you a memory stick with a load of resources on and materials, you know little pictures...a couple of cartoons, these two characters doing different experiments and you can do them with the kids...I mean I haven't as yet done any physics with the kids...but I'm going to use those...cuz I think...physics is quite hard for kids to latch on to I think sometimes'.*

#### **4.4.6 Key aspects of DRB training Stacey felt less positively about**

Two prominent themes were identified which made Stacey's training journey less positive in relation to the DRB training she received. These theme areas are reported next.

### ***Number of case studies & professional standards***

Stacey was dissatisfied with the mammoth task ('far too many') of completing twelve compulsory case studies forming her DRB training assessments. Though she recognised the prominence of these in 'measuring' her progress, she found the sheer volume of paperwork 'too much' and general workload 'tense' which detracted her from her everyday teaching practice which subsequently impacted on her effectiveness:

*'we do a number of case studies and I feel like they almost interrupt your teaching because you're worrying about them and finishing them and getting that documentation done, rather than improving your classroom practice'.*

Alternatively, she would have preferred *'fewer of them, maybe two a term, rather than three per half-term'*, or even 'two big ones' to prevent them 'eating' into her teaching time. Furthermore, although she felt she could meet her DRB course leader to discuss case studies, she felt 'unclear' about what was required from each case study because of dispensed information being 'a bit vague'.

In terms of evidencing the professional standards, she was given a case study proforma which listed all QTS standards, enabling her to highlight those she had achieved with ease. She would have however, preferred a more structured and focussed approach to evidencing standards through allocating a time window to focus on particular standards. She felt this would diminish the issue of 'information overload' and reduce her workload, making the process more manageable.

### ***Deferred training***

Stacey's training journey was certainly not plain sailing for her, but an emotional roller coaster infused with highs and lows. Although she knew she could air her 'concerns' with the DRB course leader, it was increasingly apparent in interviews that she felt 'intimidated and 'scared' approaching her. With her stress levels and anxieties accumulating with little opportunity to comfortably voice her frustrations, she considered 'deferring before February half-term' to regain her emotional strength and confidence. She felt deflated and her motivation was obliterated leaving her feeling she had 'failed'. Consequently, she did not return to her main school and deferred her training. She planned to 'return to complete the course in January 2012'.

The major findings generated from data on Stacey's university experiences are summarised in Table 16 below.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
Personal	<ul style="list-style-type: none"> <li>Found university lectures/seminars the DRB recommended for Physics (e.g. Jointed Institute of Physics) &amp; Chemistry useful for 'resources' &amp; 'ideas'.</li> <li>External tutor was 'available' and 'approachable' anytime.</li> <li>Feedback on assignments submitted 'not good enough'</li> </ul>	ZPA	<ul style="list-style-type: none"> <li>•<b>October questionnaire:</b> 'Deteriorating relationship with trainer'. 'Very close to leaving the course at times'. 'Personality clash with subject-trainer'. (ZFM)</li> <li>•Number of case studies increased workload &amp; interrupted teaching (worried about getting documentation done rather than improving classroom practice)'.  <li>•'Information overload' about QTS standards. Could not 'take it in'. Would have liked more structure (struggled with 'open-ended[ness]' &amp; guidance focussing on particular standards at a time. 'Mixed messages' on how evidence needed to be submitted (electronically or hardcopy). Slowed progress down. Needed session with exemplar evidence ('not good enough').</li> <li>•Wished she did PGCE route (believed would be an 'easier ride').</li> <li>•Relevance between DRB sessions &amp; school &amp; partnership between DRB-school 'not good enough'</li> <li>•Professional studies 'not good enough'</li> </li></ul>	ZFM/ZPA
Professional	<ul style="list-style-type: none"> <li>•'External tutor visit – very positive'</li> <li>•Good support from DRB leader: opportunity to raise concerns with her</li> <li>•Could approach external tutor anytime</li> <li>•External tutor's visit was helpful ('ideas' about how to improve were relayed). Tutor did 'not put too much pressure on' her.</li> </ul>	ZFM	<ul style="list-style-type: none"> <li>• Number of case studies increased workload &amp; interrupted teaching (worried about getting documentation done rather than improving classroom practice)'.  <li>•'Before February half-term, considered deferring'.  <li>• Support/guidance with case studies 'vague'/'unclear' particularly communication between DRB &amp; school representatives  <li>•Would have liked more DRB-led university session days after Xmas period.</li> <li>•No training on scientific enquiry skills, no training on Pedagogic Content Knowledge (PCK), no opportunity to meet Science NQT's, information about school placements 'not good enough', science practical support 'not good enough'.</li> </li></li></li></ul>	ZFM/ZPA
Situated		ZFM		ZFM

**Table 16** Summary of Stacey's overall key experiences during her DRB training time (Interview 1). This table also encapsulates other findings which have not been reported extensively above. The key message from this GTP case study reveals how the support offered by the GTP DRB was significantly less in comparison to the PGCE course, so much so, that Stacey considered deferring her training (cognitive overload) and all the difficulties she frequently encountered.

#### 4.4.7 *Main school placement: an introduction to Stacey’s school context*

Stacey’s main school placement was based in a ‘smaller than average-sized’ secondary academy school. The academy catered for mixed 11-16 year olds with ‘marginally fewer girls than boys on roll’. Their 2012 OFSTED inspection was given a rating of good. Further details are encapsulated in Table 17 below:-

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
‘Almost all students’ of White British Heritage	Approximately twice the national average	-	-	Approximately twice the national average	Good	Good

**Table 17** Data taken from the school’s most recent 2012 OFSTED report

#### 4.4.8 *Key aspects of first school training Stacey felt most positively about*

Good working relationships were established with students & staff. She enjoyed ‘interacting with students’ and established ‘nice relationships’ and rapport with them. In terms of staff members, she particularly valued the professional support (e.g. ‘tips’ and ‘resources’) and constructive feedback an NQT and other teaching staff offered her. She particularly found two-way professional dialogue effective in helping to improve her everyday practice. Her subject-trainer was always available and willingly shared her lesson plans which promoted shared practice within the department (although this was not always the case). Furthermore, observing other teachers good practice in real-life classroom situations was particularly beneficial to her in gaining ideas to incorporate in her own teaching practice.

#### ***Continuing Professional Development (CPD)***

The CPD training sessions that were delivered were of high standard and described as ‘excellent’. The school had wide-ranging sessions set in place which she valued.

### ***Support with evidencing professional standards***

The support and guidance offered with evidencing the professional QTS standards was described by Stacey as 'intense' (what she felt she needed) but 'good' particularly in her 'progress reviews'. Though professional standards were not discussed on a 'day to day' basis, she was aware of areas she needed to improve. These areas were often highlighted by her subject-trainer as 'focus areas'.

### ***Behaviour management***

Stacey felt she had a good hold on behaviour management in her main school and described how it was 'easier' than what she had experienced 'in the past' because the school had 'got behaviour nailed'. She drew comparisons with her previous experiences 'in very difficult schools' and how students at her present school sensed they 'were not going to get away with things'. She had an air of confidence about her in terms of her previous dealings with 'behavioural management' issues as she felt there was 'nothing' she 'hadn't come across before' (as a cover supervisor, supply teacher etc). Hence, her outlook differed somewhat to her colleagues who felt the behaviour was 'quite bad' in comparison to Stacey who perceived it to be a 'fairly good school in terms of behaviour'.

### ***Practical aspects of science teaching***

Stacey felt well supported by technicians and one particular teaching staff when planning and executing practical experiments. She explained how she often felt apprehensive delivering particular practicals:

*'some of the experiments are quite scary...like Magnesium and things like that...you don't want to flinch in front of the kids and look like you don't know what you're doing...so I've practiced a lot and people have been willing to stand with me and go through it'.*

*'other teachers like XXXX practical guru, he just does practicals all the time and the kids love it and he knows all of them. He showed me...what to do and how to plan them and what went wrong and that kind of thing, so he has been very helpful'.*

#### ***4.4.9 Key aspects of first school training Stacey felt less positively about***

Six key themes emerged which Stacey felt less positively about in her main school placement. These are reported next.

##### ***Lack of school atmosphere & ethos***

Stacey described how her main school felt quite ‘business-like’ with it being an academy. It did not ‘feel like a nice place to be in and lacked a sense of ‘heart’ and ‘soul’. Generically, she believed the quality of training one received was heavily dependent on the kind of school you was placed and in essence was ‘luck of the draw’. What was also apparent to Stacey was the ‘restrictive’ feeling she felt when in school and the lack of team spirit in the science department as a whole. She described how there was a ‘regimented sort of way of going on...in terms of a lot of things’ such as behaviour management. She felt she was ‘under a lot of scrutiny more so than’ she had expected which was ‘not easy’. The school also appeared to be grade driven, with little sense of a school culture/ethos.

##### ***Deteriorating relationship with school-trainer***

Stacey had quite a turbulent relationship with her school-trainer and rated the support received and time spent with her as ‘not good enough’. Though initially she openly offered professional support and guidance, the working relationship quickly deteriorated due to a professional and personality clash. For instance, she felt her school-trainer failed to provide her with the necessary freedom and guidance to develop her own teaching style. Hence, Stacey continued her teaching practice in the way wanted to to evolve into the teacher she wanted to become through her own active learning. Consequently, she increasingly felt alienated, defensive, vulnerable and alone. She also received criticism for not wholly following her trainer’s advice. She voiced this was unintentional and that the mounting workload was culpable in her becoming increasingly disorganised and leading to things ‘slipping her mind’. Her trainer subsequently became more ‘sparing’ in positively praising her and became ‘niggly & nit picking’ to a degree she felt was ‘unfair’. Hence, ‘more praise’ would have been greatly welcomed at this crucial time where she needed a confidence boost. She felt as though nobody was ‘there to keep fanning the flame’ to remain positive by telling her she was ‘doing alright’. What upset her the most was what little faith her subject-trainer and department as a whole had in her and the progress she was making. This was reflected in the school-trainer’s decision to put Stacey on an internal action plan which she felt was not ‘warranted’. When she initially came to the school, she voiced how in terms of feedback, she was ‘getting more negatives than positives’ which she felt was

unconstructive and 'shouldn't have been the case' (she appeared emotional in the interview ). The 'overwhelmingly negative' feedback only heightened her 'fear of failure' which only made her self-doubt and question 'whether she would pass' or not. Hence collectively, all these interplaying factors had a detrimental impact on her resilience, self-confidence (personally and professionally) and emotional well-being. However, it also gave her the strength to brave situations and fight on to prove to others she could do it:

*'I just looking forward to it [training process] being over and that I've proved myself and that I've ticked the boxes, you know what I mean, cuz I can do it, it's just convincing someone else I can do it, that's kind of how it's been. I hope it will start to ease off after Christmas a little bit, but I don't know, I'm just going to keep trying'.*

### ***Continuing Professional Development (CPD)***

Though the 'CPD training was excellent', the amount of information that was provided was 'too much'. Stacey explained how the sessions were 'much more than expected' as sessions ran from '5-6pm several times a week' which she described as a bit 'excessive'. But interestingly she rated the support she received from her PM and the time she spent with him as 'not good enough' stating she 'hardly saw him'.

### ***Work-life balance***

Striking a work-life balance was incredibly hard for Stacey with the workload 'piling up' on a daily basis: *'it's a lot more intense than I thought it was going to be and more paperwork'*. She described her training experience as 'intense'. What was particularly tiring and tough on her was the one hour (each way on public transport) commute she was required to take to school on a daily basis which ate into her precious time. Hence, the 5-6pm allocated CPD sessions mentioned above became increasingly problematic for Stacey as she was getting home late and having little time to rest and prepare for the next day.

### ***Lesson planning & delivery of subject knowledge to students***

Stacey had voiced concerns about her lack of pedagogic knowledge about lesson planning from the outset of her training. This had a knock on affect on the delivery of her lessons where she struggled to get 'the knowledge across for the ability of the kids' in an way that was easily accessible for students to grasp it (e.g. 'energy and sankey diagrams'). Hence, Stacey needed more guidance and



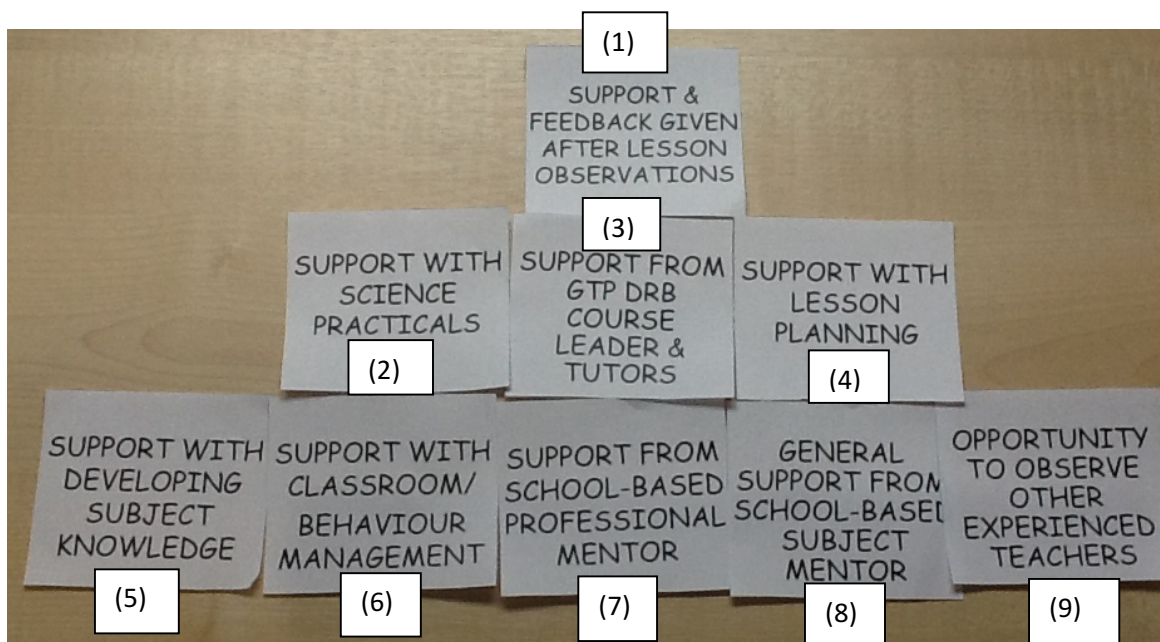
support in school but unfortunately she felt dissatisfied with this aspect of her training. She was ‘expected to submit lesson plans a week in advance’ so they could be checked, but Stacey found this stressful rather than beneficial due to the increased workload. The only support she fondly recalled was that received from a fellow teacher who she described as a ‘practical guru’ who helped her incorporate practical aspects into her lesson plans.

***Classroom allocation***

Stacey was required to teach in ‘three different classrooms’ which she found ‘very hard’ with not having her own permanent classroom allocated to her: *‘it’s not my space and I’m very aware of that’*.

***Diamond ranking responses***

Figure 21 presents Stacey’s diamond ranking responses from Interview 1 (December, 2011).



**Figure 21** Stacey’s diamond ranking responses for her main long school placement experiences

Table 18 below, encapsulates Stacey’s key training experiences whilst in her DP school. The reasons underpinning the arrangement of responses during her diamond ranking exercise are also offered. Please note, Stacey wished to arrange and rank her responses in a slightly different way with the most influential response on the top row, moderately influential responses on the middle row and least influential responses on the bottom row.

IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
Personal			<ul style="list-style-type: none"> <li>• Before half-term, considered deferring'.</li> <li>• No work-life balance. Long commute to school.</li> <li>• 'Proper fear of failure' (questioned if would pass).</li> <li>• Found some criticisms 'disheartening' ('getting more negatives than positives').</li> <li>• Found training experience 'intense'</li> <li>• experiences raised anxieties &amp; suffered with stress</li> <li>• <b>Interview 1 DR(8):</b> 'Deteriorating relationship with trainer'.</li> </ul>	
Professional	<ul style="list-style-type: none"> <li>• Good talk with another teacher – tips, resources from another NQT'.</li> <li>• <b>Interview 1 DR (4 &amp; 8):</b> subject-trainer in department was always available (e.g. showed her lesson plans)</li> <li>• Support/guidance with evidencing QTS standards 'intense' but 'good'</li> </ul>	<p>ZFM</p> <p>ZFM</p> <p>ZFM</p>	<ul style="list-style-type: none"> <li>• 'Got a low compliant for TLA10 (hoped to do better). Put on internal action plan (not 'warranted').</li> <li>• <b>Interview 1 DR(4):</b> workload 'piling up'/'expected to submit lesson plans a week in advance'.</li> <li>• Lowest point: 'got put back to non-compliant 4/5 strands (felt 'disillusioned' as tried her hardest'. 'Was a real shock'.</li> <li>• <b>Interview 1 DR (5):</b> Struggled 'getting the knowledge across for the ability of the kids'.</li> <li>• lack of work-life balance. Long commute to school.</li> <li>• <b>Interview 1 DR (7):</b> Professional training meetings (25 mins long)</li> <li>• <b>Interview 1 DR(8):</b> 'Deteriorating relationship with trainer (personality clash).</li> <li>• 'Expected to cut into holiday's to hand in assignment – other trainees weren't'</li> <li>• 'Got a low compliant for TLA10 (hoped to do better). Put on internal action plan (not 'warranted'.</li> <li>• <b>Interview 1 DR (4):</b> workload 'piling up'/'expected to submit lesson plans a week in advance.</li> <li>• 'Got put back to non-compliant 4/5 strands so felt very disillusioned (tried her 'hardest').</li> <li>• 'Just before february half-term, considered deferring'.</li> <li>• <b>Interview 1 DR(5):</b> Struggled 'getting the [subject] knowledge across for the ability of the kids'.</li> <li>• lack of work-life balance</li> <li>• 'didn't have own classroom (had 3). Found it 'very hard' not having her own 'space' ('very aware of that')</li> </ul>	<p>ZFM/ZPA</p> <p>ZPA</p> <p>ZPA</p> <p>ZFM</p>
Situated	<ul style="list-style-type: none"> <li>• <b>December Q'naire &amp; Interview 1 DR (8):</b> 'had a good visit from subject tutor'</li> <li>• <b>February Q'naire:</b> 'Good talk with another teacher – tips, resources from another NQT'.</li> <li>• <b>March Q'naire &amp; Interview 1 DR (5):</b> happy with subject-knowledge</li> <li>• <b>Interview 1 DR (1 &amp; 4 &amp; 8):</b> Subject-trainer always available (shared lesson plans, constructive feedback given after lesson observations)</li> </ul>	<p>ZFM</p> <p>ZFM</p> <p>ZPA</p> <p>ZFM</p>		

	<ul style="list-style-type: none"> <li>observing other teachers was helpful in gaining ideas</li> <li><b>Interview 1 DR(6):</b> behaviour management ‘nailed’</li> <li>enjoyed working with students (good working relationships established)</li> <li><b>Interview 1 DR (3):</b> DRB external tutor’s visit was helpful (ideas about how to improve).</li> <li><b>Interview 1 DR (2):</b> good support with practicals</li> <li>availability of science practical equipment was ‘good’.</li> </ul>	<p>ZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p> <p>ZPA</p> <p>ZFM/ZPA</p>	<ul style="list-style-type: none"> <li>found the experience ‘intense’</li> <li>criticisms were ‘disheartening’ (more negatives than positives).</li> <li>felt alone. No one ‘there to keep fanning the flame’/telling her she was ‘doing alright’.</li> <li><b>Interview 1 DR (8):</b> felt her trainer was ‘sparing in [her] praise. Would have liked ‘a bit more praise’ (for confidence boost).</li> <li><b>Interview 1:</b> a lot of ‘niggly &amp; nit picking to a degree that it was ‘unfair’</li> <li><b>Interview 1</b> ‘restrictive’ feeling to school atmosphere/lack of team spirit.</li> <li><b>Interview 1 DR (7):</b> professional training meetings only 25 minutes long</li> <li>felt it was ‘luck of the draw’ the type of school trainees are ‘placed in terms of the type of experiences encountered (‘didn’t expect the negatives’ she experienced’).</li> <li>Not a nice place to be in (no ‘heart’/‘soul’/‘business-like’.)</li> <li><b>Interview 1 DR (8):</b> didn’t receive freedom/guidance from subject-trainer to develop her own teaching style</li> <li><b>Interview 1 DR (8):</b> criticised for not following trainer’s advice – increased work/unorganised (hence things ‘slipped her mind’)</li> <li><b>Interview 1 DR (4):</b> lack of knowledge on lesson planning (wasn’t upto scratch). No time in school to plan.</li> <li>felt like thrown into deep end. Preferred PGCE style of training</li> <li>little opportunity to teach Physics (her ‘weakest subject’)</li> <li><b>Interview 1 DR (9):</b> felt ‘uncomfortable’/‘conscious’ during observations (worried about people judging her lessons). Little opportunity to observe other teachers.</li> <li>no training on Pedagogic Content Knowledge (PCK)/curriculum delivery)</li> <li>Modelling enthusiasm for science/teaching</li> </ul>	<p>ZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p> <p>ZPA</p> <p>ZFM</p> <p>ZFM</p> <p>ZFM</p> <p>ZPA</p> <p>ZPA</p> <p>ZPA</p> <p>ZPA</p>
--	---	---	---	--

**Table 18** Interviews 1 & 3: Summary of Stacey’s key experiences during LP (Terms 1 & 3). Stacey’s case study findings reveal how intense training to become a teacher in the classroom from the outset can be. Although the school offered her a good ZFM and the resources she needed, what she failed to receive was an adequate ZPA where staff were supportive and where adequate guidance was offered on pedagogical skills, professional knowledge & delivery of subject–content knowledge. Another key message emerging from this case study relates to Stacey’s wealth of previous experience working in schools and how these prior experiences did little in way of helping Stacey to deal with the difficulties she encountered whilst training. The major message emerging here is also how integral it is for trainee teachers to have good personal and professional support networks within their training schools as this is the context they spend most of their training year in.

#### 4.4.10 Second school placement: an introduction to Stacey's school context

Stacey's second school placement was a slightly 'smaller than the average-sized' secondary school. It gathered for 11-16 year olds and received a rating of satisfactory in their 2011 OFSTED. Further details about the school are given below in Table 19: -

PROPORTION OF STUDENTS						
Community served	Statement of SEN	Supported through school action +	EAL	Eligible for Free School Meal (FSM)	Quality of teaching	Student behaviour
'Almost all students' of White British Heritage	Below average	-	'Very few' students	Above average	Satisfactory	Satisfactory

**Table 19** Data taken from the school's most recent 2011 OFSTED report

#### 4.4.11 Key aspects of second school placement Stacey felt most positively about

##### *Positive school atmosphere*

Stacey recalled how it was a 'total change around' for her once she entered her second school placement. She described how the school had a positive air about it, with 'more of a team spirit' and unity amongst students and staff which was 'great'. The learning environment, although still strict, was 'not as restrictive 'in terms of a lot of things' (e.g. behaviour) and subsequently students 'seemed happier' compared to her first placement.

##### *Professional support*

Stacey spoke more fondly of the one-to-one professional support she received and how the science department 'just changed it [her experiences] all around'. She described how fellow colleagues invested more time in her by modelling pedagogic strategies and exchanging professional dialogue/discourse about key aspects of training:

*'Here, I just feel more time is dedicated to showing you strategies...they actually taught me like an hour or more'.*

*'I just feel like I've had more training...real training sat down...here's how you do this, here's some strategies...sat down and like wrote them out with me which was exactly what I needed'.*

She also described how she 'got praised...really early on' which was just what she needed. Having such positive professional support mechanisms in place contributed towards 'boosting' and replenishing Stacey's confidence which continuously grew. This reboosted confidence was something she wished to 'maintain'. It also improved her understanding of the learning environment and ways she could address her struggles in terms of delivering the science curriculum in a more accessible way for students to grasp it better.

### ***Reflection***

The twelve case study assessments Stacey was required to do offered ample opportunities for her to review and reflect on her teaching practice. She was also required to 'to fill in evaluations' regarding her 'training every week' to help her identify aspects she found 'interesting', 'positive' or less positive. Constructive feedback about taught lessons also formed an integral part of her reflective process in terms of advice on keeping students on task and managing behaviour:

*'They [mentors and teaching staff] usually give me some feedback and say what went well and what didn't you know, but it's mainly in terms of like the lesson...how the progress went and you know...those kids were off task...it's not really a behaviour thing here...you know how could you get them on task next time...what technique would you use...there is a good pupil service...support system here...but I have used them so they're very helpful...I mean straight away they like...walk to your side of the story...yep, do you want him in detention...off you go...you know they're backing staff up'.*

### ***Support with practical aspects of science teaching***

Stacey felt satisfied with the support she received with setting up science experiments and how teaching staff 'would have no problem showing' how they conducted practicals in their own teaching practice:

*'one of the teacher's did show me how she would do it [an experiment] and the technician suggested how I might want to do it'.*

### ***Excellent relationship with new school-trainer***

Stacey's professional relationship with her second school-trainer was 'excellent'. She described how she received a 'better level of training' and how her subject-trainer and other staff were 'more patient' with her and how she felt quality time was 'invested' into training her. Her school-trainer would provide her with written and 'verbal feedback' after formal lesson observations and always checked over her lesson plans before Stacey delivered her lessons. Her trainer also dispensed more 'general advice' with not having mentored previously. What was particularly useful was the templates Stacey was given with targets on which helped her focus on key areas at a set time.

### ***Lesson planning***

Stacey spoke fondly about the support a fellow science teacher offered who had spent hours with her addressing some of the issues she had encountered with lesson planning:

*'His [science teacher] met me about three hours going through planning how to group according to ability...actually helping me write a lesson format to see what would be good for when I get observed...and what I should put in there'.*

This guidance boosted her confidence and knowing there were colleagues there willing to take time out 'in terms of sitting down' with her was a great feeling for Stacey. Time was even allocated in her timetable by her trainer 'to mark and plan' which she greatly welcomed.

### ***Freedom to develop own teaching style***

The science department openly encouraged Stacey to develop her own teaching style by giving her tailored support and freedom to do so.

### ***Workload***

The workload became a lot 'easier' with the department providing her with time allowances to 'mark and plan in school-time'. Stacey felt this was key to the improvements seen in the progress made. Any support she required was at hand whilst being in the presence of her trainers and science colleagues. This subsequently reduced the hours she normally spent planning at home. This was not the case in her first school immediately after the Christmas break. She described how she felt it was a 'fresh start' and how the workload was 'alright at first, but...the workload started to build up again'

whilst in her main placement school. This was the point where the workload pressure began to accumulate again. Hence, it was a breath of fresh air when she entered her second placement school and all her stresses and anxieties diminished because of the ‘excellent’ mechanisms that had been put in place for her.

#### ***4.4.12 Key aspects of second school placement Stacey felt less positively about***

##### ***Lack of science equipment***

There was ‘quite limited’ availability of practical science equipment in comparison to her main school. However, Stacey did not mention whether this had a detrimental impact on her teaching practice.

##### ***Experience with EAL students***

The opportunity was created for Stacey to attend another school who had provision for EAL and SEN students once a week for one month. However, she was disappointed with how disorganised the school was in terms of observing an EAL student in the context of science:

*[I was]... ‘meant to observe in science and teach part of a lesson but because the teachers’ didn’t really know what was happening, we didn’t get the chance to teach part of the lesson’.*

*[It was].. ‘not as much experience as I would have liked really and some of the classes I didn’t see a lot of provision for them I didn’t think....unless it was a specific English lesson for them’.*

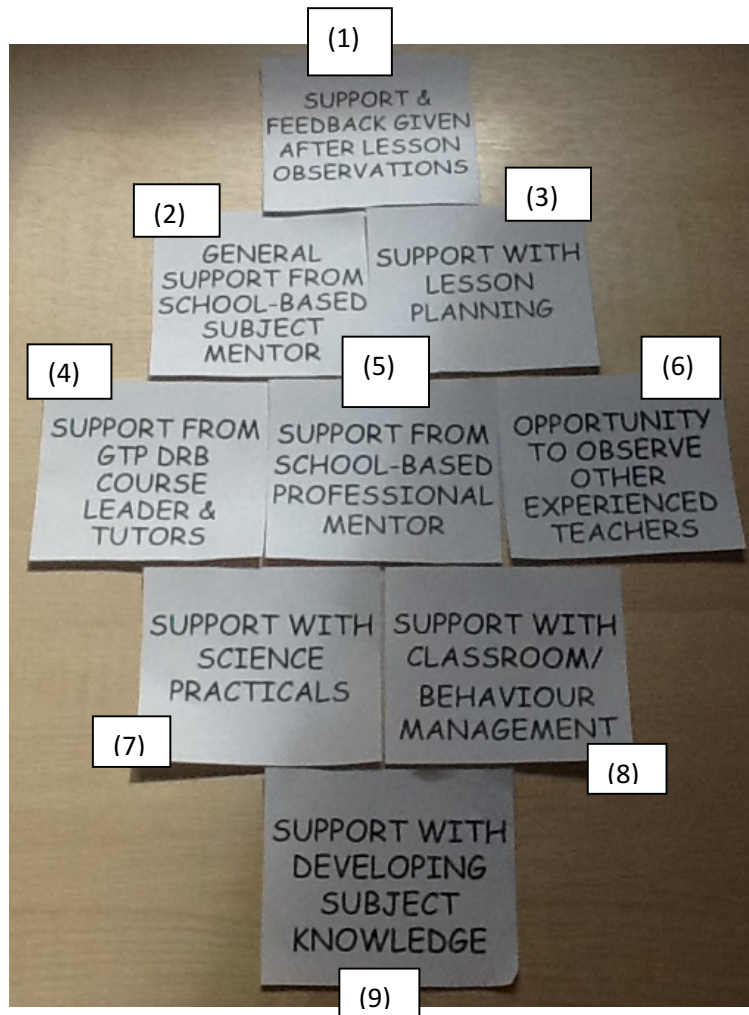
##### ***Returning to main school placement***

Stacey felt apprehensive about returning to her main school placement after feeling overwhelmed with the quality of training and support she received. She voiced the following; ‘I really wanna stay...I asked them [the school] if I could stay but there wasn’t scope’. Hence, unfortunately she was left feeling deflated and saddened, but endeavoured to draw strength from the thought that perhaps she ‘could just keep in contact with the people’ she had established professional relationships with. She just wanted to ‘maintain’ the progress made and to keep building on her confidence.

### *Diamond ranking responses*

Figure 22 presents Stacey's diamond ranking responses from Interview 2 (March, 2012).

Stacey felt her responses remained unchanged when Interview 3 (June 2012) was conducted.



**Figure 22** Interview 2: Stacey's key experiences during her second short school placement (Term 2: February-March)

Table 20 summarises Stacey's key personal, professional and situated experiences during her second school placement.



IDENTITY DIMENSION	MOST POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE	LESS POSITIVE EXPERIENCES WHICH INFLUENCED STACEY'S IDENTITY DEVELOPMENT	VALSINER ZONE
<b>Personal</b>	<ul style="list-style-type: none"> <li>• 'Much better progress and self-confidence'. Stress/anxieties reduced. Improved sense of well-being.</li> <li>• 'Better level of training – more patient, more time invested' by subject-trainer, mentors &amp; other staff.</li> <li>• 'Much better progress and self-confidence'.</li> <li>• Training meetings 1 hour: 'more time' 'dedicated to showing...strategies'.</li> <li>• <b>DR (3)</b>: Colleague dedicated 'three hours going through planning, how to group according to ability... 'lesson format' for lesson observations.</li> <li>• <b>DR (5)</b>: Freedom to develop her own professional teaching style</li> </ul>	ZPA  ZPA ZPA ZFM	<ul style="list-style-type: none"> <li>• Professional relationship with trainer was 'excellent'.</li> </ul>	ZFM/ZPA
<b>Professional</b>	<ul style="list-style-type: none"> <li>• <b>DR (2 &amp; 5)</b>: 'Better level of training – more patient, more time invested' by subject-trainer, mentors &amp; other staff.</li> <li>• 'Much better progress/self-confidence' grew.</li> <li>• collegial relationships established (developed knowledge on learning environments/science curriculum/'techniques to use'.</li> <li>• high point: starting short placement school – was 'a total change around'.</li> <li>• had 'more training' which was more effective</li> <li>• <b>DR (1)</b>: constructive support/feedback offered: 'massively' better than main placement', 'got praised' (boosted confidence)</li> <li>• 'more of a nice atmosphere'/a 'bit more of a team spirit'.</li> <li>• 'kids seemed happier...not as 'restrictive' e.g. 'behaviour' management...still strict but not 'regimented' – 'fewer behaviour incidents'.</li> <li>• training meetings 1 hour: 'more time' 'dedicated to showing...strategies'.</li> <li>• good working relationships formed with students.</li> <li>• freedom to develop own teaching style.</li> <li>• good support with science practicals (setting up demos)</li> <li>• enjoyed 'assembly for Science week (Y6 – Y7 transition bridging work).</li> <li>• advice from NQT very helpful.</li> <li>• workload 'got easier'. Trainer gave 'time to mark &amp; plan in school time'.</li> </ul>	ZFM/ZPA  ZFM/ZPA ZFM/ZPA ZFM/ZPA  ZFM ZFM ZPA ZFM/ZPA ZFM ZFM ZFM/ZPA ZPA ZFM/ZPA	<ul style="list-style-type: none"> <li>• high point was coming to second placement school 'it's been a total change around'.</li> <li>• professional relationship with trainer was 'excellent'</li> <li>• wanted to remain in short school placement 'but there wasn't scope'.</li> <li>• science practical equipment was quite 'limited'.</li> <li>• no training on Pedagogic Content Knowledge (PCK)/Subject-knowledge (curriculum delivery)</li> </ul>	ZFM  ZFM/ZPA  ZFM  ZPA
<b>Situated</b>				

MIXTURE OF BOTH POSITIVE & LESS POSITIVE EXPERIENCES				
<ul style="list-style-type: none"> <li>• Head of department was 'great', 'really nice' but 'not responsible' for her training ZFM</li> <li>• Had experiences with SEN/EAL but no opportunity 'to observe in science/teach part of a lesson (teachers' didn't really know what was happening'.) ZFM/ZPA</li> <li>• 'Very confident' with subject-knowledge but 'still only at compliant' ('main school didn't want to move her up too high in case put anyone's nose out of joint'.</li> <li>• Both schools expressed she had potential to be a good teacher but main school expressed 'doubts' (felt like she had 'failed'.)</li> </ul>				

**Table 20** Interview 2: Summary of Stacey's key experiences during short second school placement (Term 2: February-March). It is clear here that Stacey's most positive training experiences were encountered in her second short placement which was rated as a satisfactory school by Ofsted. Yet, like George's case study revealed, this school offered more support and guidance than her main school which was considered to be a good school by Ofsted (suggestive of pressures being greater in such schools?).

#### **4.4.13 How Stacey felt about her overall training journey**

This section reports descriptive findings on how Stacey rated her:

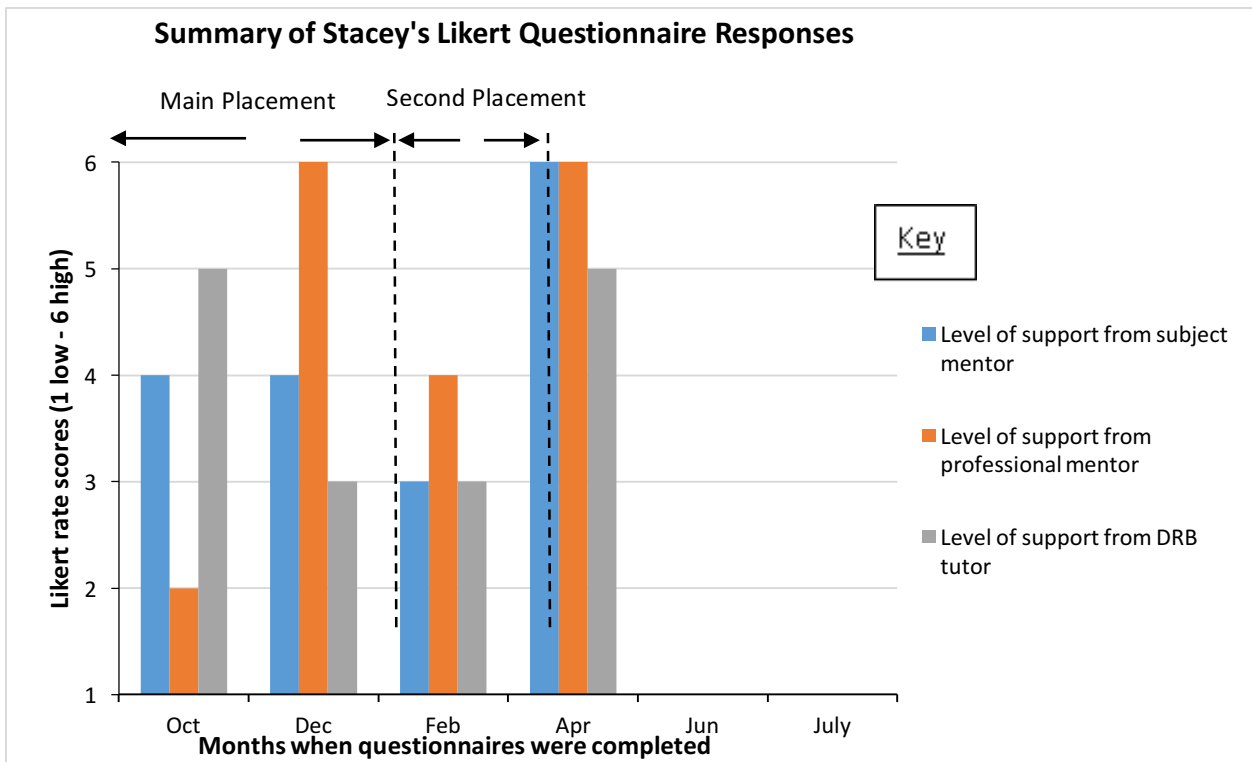
- overall training experiences
- perceived teaching progress, satisfaction with her training, if expectations for teacher development were met and overall support received from DRB tutor, SM & PM

Stacey found her training experiences ‘intense’ and ‘thought it would be easier’ but she was ‘not sorry’ that she had embarked on the journey. She voiced how she expected the training to be ‘more prescriptive’ in nature but soon realised how she was required to ‘find’ her ‘own style’ of teaching approach. She found the unpredictability of her training ‘quite hard’ particularly because there was ‘no right or wrong answers’ and preferred things to be ‘black and white’:

*‘I didn't think it would be so demanding in terms of alot of things, in terms of like the time you put in when your not in school and the expectation’.*

#### **Overall level of support Stacey received from her DRB tutor, SM's & PM's whilst training**

The level of support Stacey felt she received from her DRB tutor, SM and PM at five points throughout her training were recorded. This is presented in Graph 5 (p. 141).

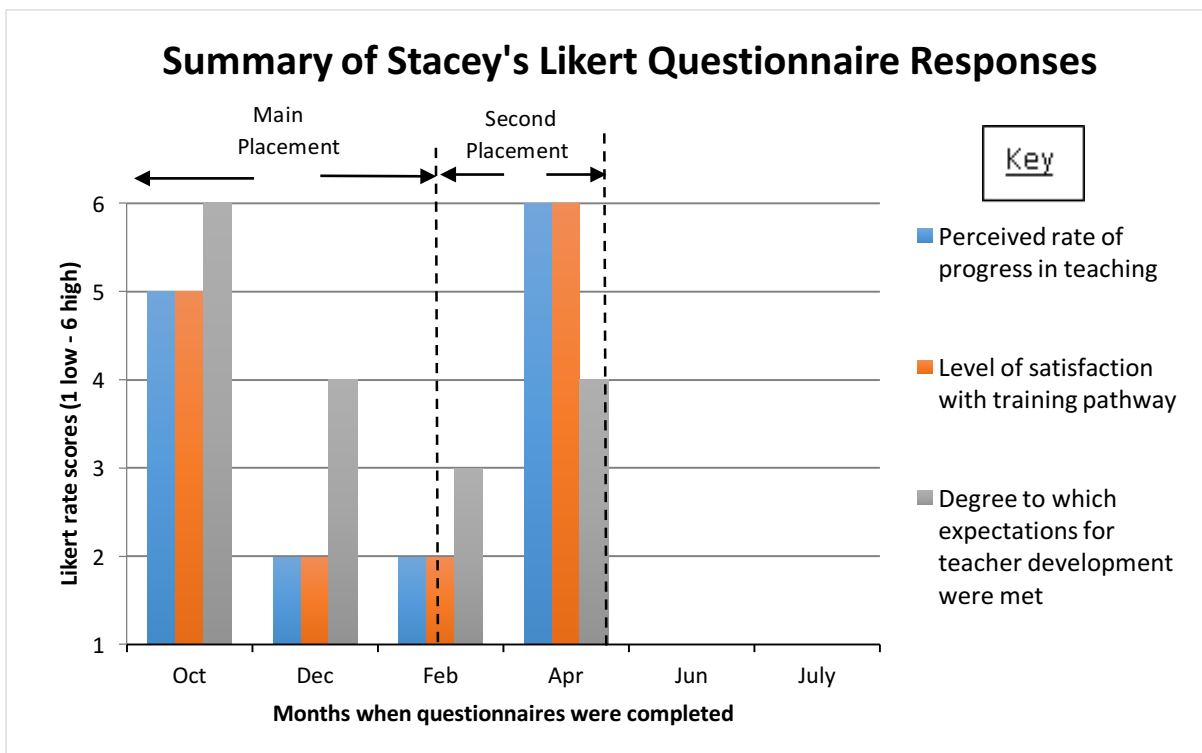


**Graph 5** Stacey's self-rated support received from DRB tutor, SM's & PM's throughout her training year

As Graph 5 depicts, she was most satisfied with the level of support her second second school SM offered in comparison to her main school which had a positive impact on her progress as Graph 6 (p. 142) shows below.

**4.4.14 Stacey's self-rated teaching progress made, satisfaction with training pathway & if expectations for teacher development were met**

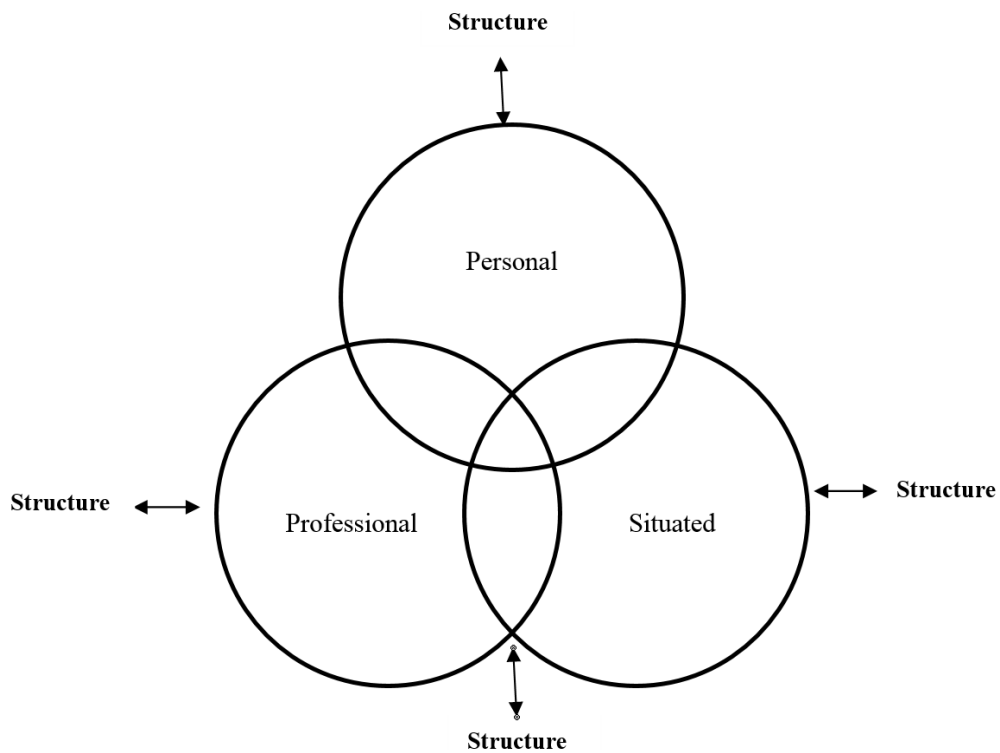
Stacey's perceived level of progress, satisfaction with her training and expectations revealed slight fluctuations throughout her training. In the early stages of her main school training, she like other trainees did not know what to expect as the experience was new to her and focussed on adjusting to her school environment. Hence, at the time she voiced how she thought her expectations for teacher development were successfully met. But the findings reported signal this was not the case and this became more evident as her training journey unfolded. As Graph 6 (p. 142) shows, she was more satisfied with her training once in her second school placement where a more supportive and stable professional training environment was offered. This improved the way she felt about her teacher identity and instilled in her the confidence she had previously lost. This suggests she felt less alienated in a more relaxed work environment where she forged better working relationships with her SM and other staff.



**Graph 6** Stacey's self-rated teaching progress, satisfaction with training pathway & degree to which expectations were met.

#### 4.4.15 Overall teacher identity scenario that Stacey experienced

In light of the reported findings in this case study, Stacey's overall experiences predominantly depicted scenario 4 (Figure 23, p. 143) of Day & Kington's (2008) identity model. All three identity dimensions (personal, professional and situated) appeared to be conflicting to varying degrees and appeared unstable in her main school and more stable in her second placement. This somewhat created 'extreme fluctuations' in Stacey's teacher identity as shown in figure. In her first school, she was not able to manage these fluctuations due to internal factors (e.g. the lack of support she received in her main school training environment) and because of external personal factors (e.g. not feeling like the academic 'high-flyer' she used to be). However, once in the second school placement, she felt more able to manage these fluctuations between identity dimensions because of the more supportive training environment she was in. As Table shows, positive influences in her personal, professional and situated life helped towards regaining her confidence. Furthermore, the findings suggest how important support networks are in ITT as Stacey's previous experiences working with young people were not enough to get her through the 'intense process'.



**Figure 23** Stacey’s experiences were characteristic of Day & Kington’s (2008) identity Scenario 4: three conflicting dimensions

These influencing factors and experiences as a whole appeared to shape Stacey’s teacher identity. From previous careers, she had learnt it was integral for her to deliver science lessons which were enquiry-based and practical which integrated fun aspects to ensure students were actively engaged. By designing lessons in such a way, Stacey hoped it would also diminish issues with poor student behaviour.

## Chapter 5. Discussion and implications

This chapter provides a critical discussion and implications of research findings. Sections are as follows:

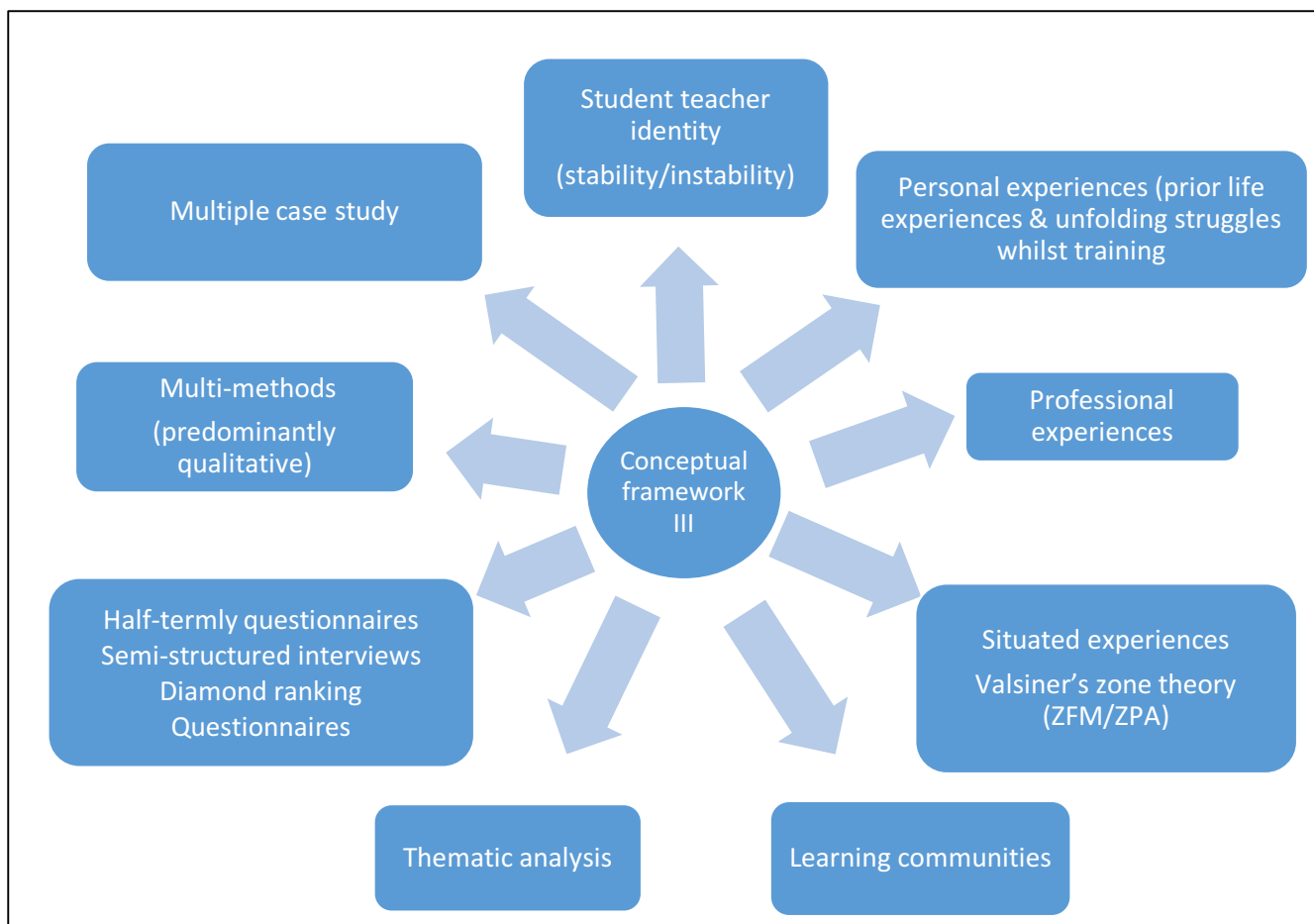
**Section 5.1:** offers an overview to the research by reiterating the research questions, overall theoretical framework embraced and the analytical tools used.

**Section 5.2:** offers a micro-level discussion of key influential themes emerging across individual case studies integrated with a discussion of implications study findings have at the meso-level for teacher educators and the future design of teacher education programmes.

**Section 5.3:** brings the chapter to a close with a final conclusion

## 5.1 Chapter overview: Introduction

This chapter provides a critical and integrated discussion (at the micro-level) of similar themes which emerged from across case studies in terms of STs' influential personal, professional and situated experiences in HEI/DRB and school learning communities and how these shaped teacher identities. The findings offer a holistic view of the variety of unique experiences STs' encountered. The significance these findings hold in line with current trends are also referred to in addition to implications for design of teacher education programmes at the meso-level. Links were made to findings in existing literature where possible. The final version of the conceptual framework developed gradually throughout the research is presented below. It pulls together the review of the literature, research methodology and emerging themes into a concise framework in which the data analysis was conducted and discussed to address study's research questions.



**Stage III:** This is the final refined conceptual framework that is central to the present study. This framework has evolved over the duration of the study and this final conceptual framework summarises the theories that became pertinent to the present study.

To reiterate, Chapter 4 reported in-depth on the data analysis procedures used and key study findings that were revealed. The study was predominantly qualitative in nature and utilised multiple methods to collect data from two science PGCE ST's and one GTP ST from the cohort who began their training

in the academic year of 2011/2012. These three ST case studies were central to this study. The study's research questions were (linked to Figure 1):

1. What personal, professional and situated experiences/ contribute towards supporting or challenging the development of STs' identity as science teachers?

This relates mainly to Wenger's 'learning as doing' & 'learning as becoming' theory (practice & identity)

2. What meanings do STs' construct from their perceived experiences and how do they learn from these in terms of identity development?

This relates mainly to Wenger's 'learning as becoming' and 'learning as experience' theory (making meaning)

3. What are the key features of teacher education programmes (HEI and DRB) and school learning communities which support or challenge identity development?

This relates mainly to Wenger's 'learning as becoming' and 'learning as belonging' theory (community)

These questions were addressed using three theoretical models to assist me in my quest. These encompassed:

- Wenger's (1998) social theory of learning model which was embraced and formed the overarching theoretical framework for the study (Figure 1). The model captured what this study was setting out to explore.
- Day and Kington's (2008) teacher identity model (also central to the study) by mapping STs' personal, professional and situated experiences onto each identity dimension to determine the relative stability/instability their identities depicted.
- Applying Valsiner's (1997) basic zone theory concepts of:
  - ZFM: to consider STs' institutional and social contexts and how these environmental settings constrained or enabled their teaching actions.
  - ZPA: to consider the efforts of HEI/DRB and school staff to promote particular teaching approaches and skills (e.g. professional knowledge, subject-content knowledge, pedagogical knowledge and didactical knowledge). Beijaard, Verloop and Vermunt (2002) also explore identity in a similar way).



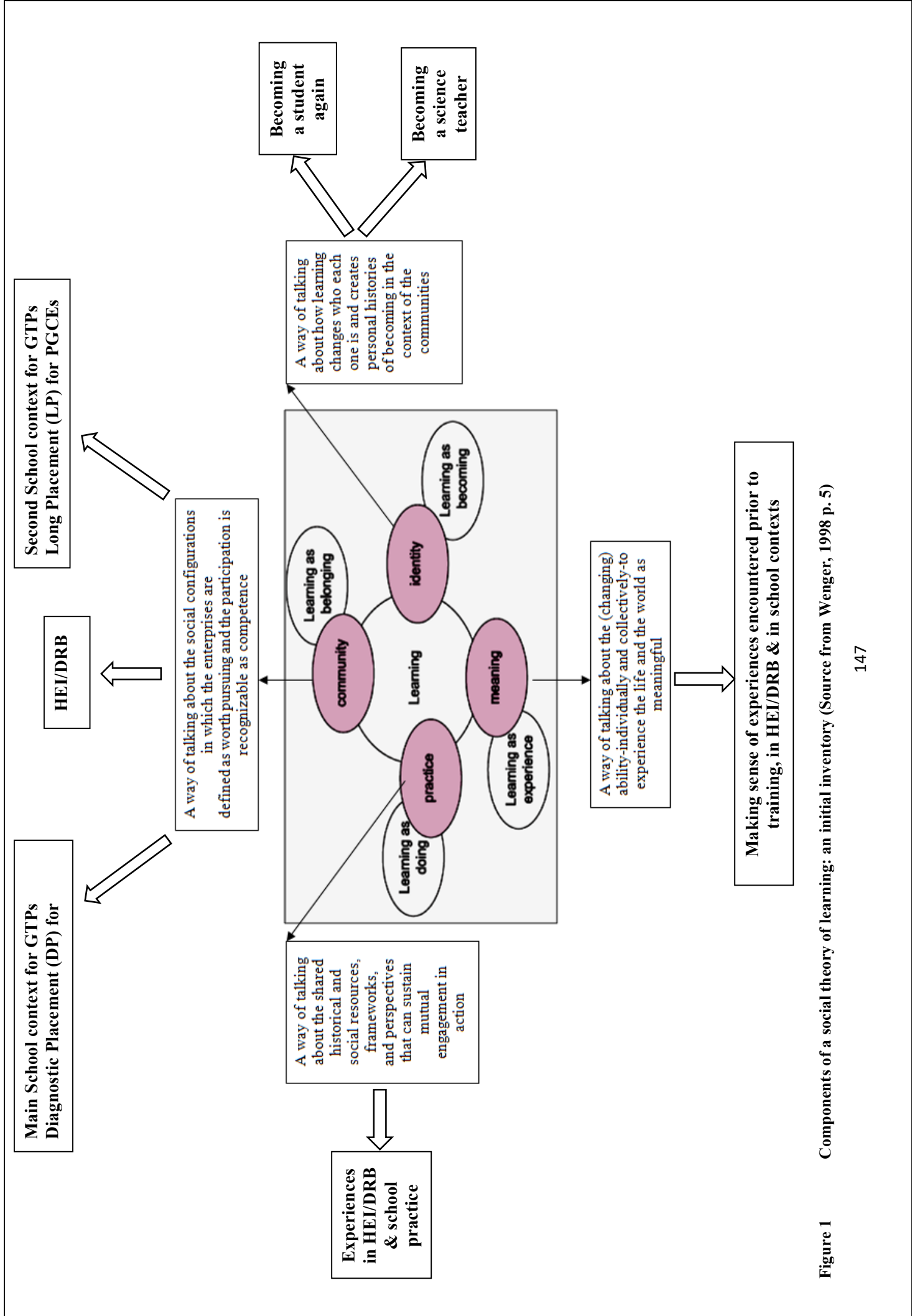


Figure 1 Components of a social theory of learning: an initial inventory (Source from Wenger, 1998 p. 5)

## **5.2 Variations in STs' emerging identities as science teachers: key mediating influences: micro-level discussion**

To reiterate, recent literature on teacher education has given greater attention to identity work and its imperative role in teacher development (e.g. Korthagen et al., 2001; Sachs, 2005; Freese, 2006; Riopel, 2006; Hoban, 2007 & Olsen, 2008). Focus has been particularly on pre-service and newly qualified teachers. The particular notions of teacher identity utilised in the study were as follows: how 'teachers' initial identities may change over time as they are challenged by different life and work experiences and school contexts' and how shifts in teacher identity are an inevitable part of becoming a teacher (Day & Kington, 2008, p. 21); the significance of teacher narratives in exploring how teachers reinvent themselves when exposed to various work-life situations (Sfard & Prusak, 2005). The present study reveals how unique experiences encountered by individual ST's were dominated by their personal, professional and situated experiences to varying degrees. As the findings reflect, numerous factors were identified that either supported or challenged STs' identity development as science teachers. The following factors appeared to play a pertinent role in the way STs' dealt with the highs and lows involved in becoming a teacher.

### **5.2.1 *Reasons for choosing the GTP or PGCE route***

As the findings illustrate, a variety reasons underpinned the STs' decisions to embark on their training either through the PGCE or GTP training routes. For Stacey (GTP), reasons were mainly for financial reasons (e.g. having a mortgage/paying rent and a family to provide for). Secondly, she felt the GTP route was the best option for her as she wanted to be in the school environment immediately to develop her pedagogy hands on. Having previously worked as a HTLA and supply teacher, prior to embarking on her GTP training, she did not feel going back to university was the right choice for her. Had she had her time over again, she voiced how she would certainly choose the PGCE route had she known she about all the difficulties she encountered. Whilst training, she openly admitted from the outset that she had made the wrong decision about her training route because she felt it would have offered her more structure and greater theoretical scope. George and Tracey who were already on the PGCE course also offered similar reasons in addition to wanting to return back to university having not been exposed to university and school environments for a long time. They also expected to receive more facilitated support from experienced academic staff in their HEI. Furthermore, they were aware that the GTP route did not offer masters level accreditation and was also a qualification not recognised worldwide.

Study findings highlight that this certainly was the case although weaknesses were also evidently revealed. Training on the job via the GTP route was found to be a demanding and intense experience. However, the PGCE ST's equally had an intense time both academically and on the job demands. They were required to produce Master level assignments (the academic demands on the GTP ST whilst completing case studies were not as high) whilst work in school. This finding highlights how Stacey believed the grass was greener on the other side for PGCEs but in actual fact she was oblivious to the struggles they too encountered. However, the intensity of PGCEs training journeys was alleviated when returning to their HEI for a period of time after their DP. This breathing space was welcomed by all and offered ample opportunities for PGCE students to share and reflect on their experiences. In this respect, the GTP route was more intense with not having such lengthily breathing spaces available to them in the everyday hustle and bustle of school life.

These findings firstly have implications at programme level for personnel in ensuring STs' are recruited on the most suitable training routes for them taking into account prior experiences. Secondly, this study advocates that more breathing spaces and opportunities for reflection on employment based ITT could go a long way in alleviating pressures off STs' at particular points of their training. This would allow STs' to 'step out' of their hectic teaching schedules and diminish STs' sense of feeling overwhelmed. This in turn would subsequently improve STs' well-being and emotional resilience. This study further argues that had this been the case for Stacey, perhaps she may have continued on with her training. Unfortunately, because this was not the case, she admittedly expressed how she would choose to do the PGCE route if she had her time again.

To conclude, the above discussion reveals how particular aspects of the ZPA provided in HEI and DRB both enhanced a restricted their personal ZFM once they were in their schools-placements. Furthermore, discrepancies were detected in the level of critical thinking and reflective skills STs' took with them into their first teaching practice with PGCE students appearing more equipped in this respect.

### ***5.2.2 Professional identity: reasons for entry to the profession & the kind of teachers STs' aspired to be***

The wide ranging and unique reasons for entry into the teaching profession unveiled in this study were directly related to Olsen's (2008 p. 36) claim that 'a teacher's reasons for entry bridge prior events and experiences with the kind of teacher one is becoming'. These reasons contributed to how teacher identities were shaped. For some, it related broadly to having a career change/advancement, not knowing what career path to take in life and job satisfaction/future career aspirations (the desire

to experience ‘spontaneity and daily challenges’ in a ‘stimulating’ and ‘fulfilling’ job role. For these STs’, teaching appeared to fit the bill particularly for those who enjoyed working with children and wanted to make a difference to their lives. For others it was for financial stability, seeing teaching as a safe career which also offered more opportunity to spend time with family during school holidays. Furthermore, for others there was a connection between STs’ own childhood learning experiences of science and the influences former teachers had. For instance, those STs’ who were lucky enough to have had influential teachers themselves yearned to follow in their footsteps in terms how they wanted their own teacher personae to develop. Similar findings have previously been reported which highlight how STs prolonged contact to learning environments and teachers as school students themselves are influential to one’s decision to enter the teaching profession (e.g. Bailey et al, 1996; Borg, 2004; Malderez et al, 2007 and Cook, 2009). Therefore, the revelation in the present study is not surprising with findings suggesting that these past experiences with their own inspiring teachers crucially ignited STs’ initial love for science and in wanting to develop similar personal characteristics their own teachers portrayed. Those STs’ who did not have inspirational teachers, entered their training with a preconceived image of the ‘perfect teacher’ they wanted themselves and hence, aspired to be. It must be pointed out that STs’ gave quite vague responses when asked about their own schooling experiences. This indicated that they had not considered such experiences, perhaps due to the HEI’s/DRB’s failure to create awareness of these. In this respect, the schooling experiences of each ST did not appear to be a strong attributing factor in their decision to become teachers (as was evident from the vague responses given).

Nevertheless, findings did confirm that reasons for entry into teaching were influential in predetermining the way STs’ teacher identities evolved over their training year. Hence, Olsen (2008) advocates the need for teacher educators to become more acquainted with such personal reasons for entry. Similarly, Akyeampong and Stephens (2002, p. 273) point out how STs’ images and understanding of teachers/teaching ‘need to be made more explicit and given voice in the training process, so as to promote deeper reflection on professional knowledge and pedagogical classroom practice, which can then lead to a personalised understanding of teaching’. This was certainly not the case particularly for the Stacey (GTP ST) in the present study. The study interviews were the only opportunity that Stacey had to voice and reflect on her training experiences. Hence, it was evident that (prior) experiences and learning attributing factors (both positively and less positively) in STs’ reasons for entry to the profession and subsequent development of their science teacher identities.

### ***5.2.3 Professional identity: continuing professional development***

There were mixed feelings expressed by STs' particularly by PGCEs who struggled to recognise the utility of certain aspects of CPD training they received with some describing it as 'information overload'. Whilst others reaped benefits from CPD training they received in school by realising the relevance and potential insights theories could have for their future careers even if information was not utilised whilst in the training process.

In addition, some STs' like George questioned the role his professional mentor played in his training journey. As voiced by others, it was apparent that one to one support and time spent with professional mentors was limited with some STs' rarely seeing their PM's at all. This suggests that professional mentors in school need to play more of an active role in the training process for instance, in terms of providing tailored professional support which meets each individuals training needs.

### ***5.2.4 Professional identity: the teacher standards***

Study findings revealed varied attitudes and feelings about evidencing their achievements against the prescribed teacher standards. Some spoke fondly of consideration given to alternative provision for STs' to achieve those standards they struggled to meet in their school contexts (where standards were context specific). On contrary, others questioned the purpose of having so many QTS standards but acknowledged they were required as part of assessing their progress against. It appeared others struggled to comprehend the long term benefits of acutely filing copious volumes of evidence to shaping their teacher identities. Findings also revealed how evidencing teacher standards appeared to lose its power as a stimulating and reflective tool because of it becoming increasingly perceived as an 'exhaustive' administrative task. Having found the process repetitive and exhausting with it being open-ended, they would have preferred a more coherent, structured approach which involved looking at examples of previous students' evidence files and the quality/nature of evidence submitted. Though assignments (PGCEs) and professional case studies (GTPs) provided some structure, the responses STs' offered painted a different picture. In addition, there was evidence of fragmentation on the PGCE programme as reflected in the conflicting messages they received from HEI personnel in terms of the format they were required to follow when compiling their evidence files (e.g. hard copies or electronic files).

Overall some of these findings hold implications for teacher education providers by highlighting areas where further efforts are required to improve the student experience in this respect. For instance, in the present study, STs' needed more guidance and support in understanding the utility of particular teacher standards in shaping science teacher identities both in HEI/DRB and school. Implications for programme and school personnel is that greater opportunities need to be allocated to collaborating discussing and reflecting on teachers' standards both in HEI/DRB with fellow peers and in school with mentors and other staff.

### **5.2.5 Professional identity: workload**

The majority of STs' in this study gave some indication of their inability to manage their professional workload. This impinged on the wider training struggles they encountered regardless of which of the four scenarios they were experiencing. This struggle to strike a healthy work-life balance appeared to diminish their personal motivations and overall sense of well-being. There are implications for programme personnel and schools in these data in relation to renewing efforts to alleviate struggles with heavy workloads by offering guidance on time management and organisational skills. Policy makers could also consider such concerns in terms of finding ways to reduce administrative tasks in STs' ITT year to ensure the sole focus is on hands on teaching and practice.

### **5.2.6 Personal identity (1): STs' prior experiences and learning**

Previous studies have argued how STs' previous experiences can influence the way their teachers identities are shaped over the course of their training year (e.g. Clark, 1992; Knowles, 1992; Akyeampong and Stephens, 2002; Olsen, 2008; Andersson and Hellberg, 2009; Daly, 2009; Izadina, 2013). The findings of this study confirms this by revealing how background characteristic, prior learning, experiences, values and expectations do play a considerable role in shaping STs' teacher identity which supports what other studies have found. For instance, this study agrees with Izadina (2013 p. 704) that 'teacher education programmes should recognise STs' prior experiences and learning'. However, this appeared not to be the case with the teacher education programmes in the present study. Prior learning and other relevant experiences were only considered at the selection and recruitment stage. No further recognition was given to these once the training process had commenced. Perhaps this was due to course logistics, time constraints or pressures of workload but even so, this study argues that time needs to be allocated for reflection on such experiences. Hence, this study extends Izadina's (2013) argument by advocating that teacher educators need to promote greater awareness in STs' of the value the following prior experiences hold and how tapping into

these may offer potential benefits towards teacher training and identity development. After all, as Cook (2009) argues, reflecting on such experiences creates rich learning opportunities for novice teachers. In light of this, perhaps greater awareness could be promoted via STs' initial needs analysis. Or perhaps setting up dedicated learning spaces in HEI/DRB and school could be the answer through encouraging discourse and shared reflection with fellow peers (e.g. via informal meetings, social media or online blogging).

Prior learning and experiences in the following key areas were found in this study to be influential in shaping STs' identities as science teachers.

### ***5.2.7 Personal identity: academic background***

This study found that younger STs' appeared to value their undergraduate/postgraduate degrees more so than older STs' having had less work experience. They felt their degree(s) equipped them enough with the necessary skill set required to teach particular aspects of the Science curriculum (e.g. confidence, transferable skills and 'deeper understanding' of subject-knowledge). These beneficial outcomes appeared to ease STs' transition into university having been students before and being already equipped with pre-existing knowledge and skills.

However, not all STs' felt entirely this way for instance, Stacey highlighted the difficulties she encountered with teaching KS3-KS5 science with a 'higher level mind set'. Stacey particularly struggled with 'getting the knowledge across for the ability of the kids' particularly those difficult to grasp concepts which frustrated her. With Stacey having previously been a 'high-flyer' academically, her general learning experiences had predominantly been positive. Therefore, she struggled once she started to encounter difficulties in her training which to her signalled 'failure'. This subsequently 'hindered' her teacher identity development and impacted on how she felt about herself personally and professionally as a teacher. This clouded her mind, which obstructed her ability to consciously tap into previous successes to regain her confidence. Therefore, this suggests her past academic successes somewhat exercised detrimental effects on her teacher training experiences and identity having had no exposure to such struggles before. Hence, this study argues how reassurance from teacher educators is key in terms of helping STs' acknowledge that experiencing highs and lows in the training process is a normal and expected part of becoming a teacher. Thus, I revert back to the argument of how imperative it is for teacher educators to tackle such issues earlier on through promoting greater awareness of teacher identity to STs' so 'they can learn to identify and adjust what [and how] they learn from their pasts' (Olsen, 2008 p. 37). Such preventative measures could help

subside any anxieties STs' encounter whilst in the depths of their training and subsequently improve their emotional resilience and well-being.

### **5.2.8 *Personal identity: previous career(s) experiences***

This study confirms that previous career experiences were moderately influential in planting the initial seed in STs' minds in terms of subsequently wanting to pursue a career in teaching.

For Lucy, the opportunity to work with young people in her previous job through full time teaching in science labs could be argued as being the initial seed which embedded the thought of wanting to choose teaching as a career. Stacey, as a mature ST appeared to initially attach greater weight to the experiences she had gained through her previous job roles (supply teacher, LSA and HTLA) in comparison to the younger STs' who appeared to somewhat overlook these (e.g. George and Tracey). Nevertheless, in Tracey's case, it is argued that her previous experiences of teaching science in labs may have been pivotal in her decision in wanting to become a teacher. She referred more frequently to her work experiences from industry in comparison to her academic qualification(s). This was not surprising with it being more hands on applying scientific theory to daily work situations. Reflecting on such experiences contributed towards further shaping Tracey's science teacher identity by developing her interpersonal skills and confidence. Findings also suggest that being armed with such valuable experiences can improve STs' pedagogical practice by applying scientific theory to students' everyday situations, making science more relevant, interesting and engaging. Interestingly for Stacey, as her training progressed, she appeared somewhat despondent and felt baffled when learning her progress had been rated as 'non-compliant' for a second time. This had detrimental impacts on her emotional well-being which challenged her teacher identity as reflected in her decision to defer her training due to work-related stress which she openly voiced. This finding suggests she was not emotionally supported whilst training particularly in her main school which illuminates how important support mechanisms are in preventing STs' feeling isolated or alone. Furthermore, individuals' decisions to either withdraw or defer training completion can be influenced by a complex of multiple interplaying factors rather than one single reason

### **5.2.9 *Personal identity: experiences working with young people***

Study findings also suggest how previous experiences working with young people, whether through previous job roles or through young family connections proved influential in STs' decision to pursue a teaching career (e.g. having qualities such as patience, resilience, knowing how and when to set boundaries with pupils and implementing strategies to manage behaviour). These experiences gave



STs' the confidence to build a rapport with pupils by having a pre-understanding of how to interact with them. For instance, Stacey reminisced how she had never pictured herself working with young people. It was actually through her previous job roles that she realised how much she enjoyed it. This subsequently equipped her with the knowledge and skills required to deal with the multiple challenges and situations presented in dynamic classroom teaching environments. This indicates that such experiences did positively contribute in helping to shift Stacey's identity in her transition from DRB (as a student) to school practice (as a professional teacher). As Stacey commented; *'I don't think I could have coped if I hadn't had previous experience with young people'*. This finding is in line with what other studies have found (e.g. Olsen, 2008 and Andersson and Hellberg, 2009). This illustrates how generally prior career experiences contributed towards shaping STs' teacher identities by building on their confidence, subject-knowledge and ability to establish good working relationships with pupils and staff.

#### ***5.2.10 Personal identity (2): STs' unfolding struggles whilst in the training process***

The findings of this study offer a detailed holistic view of the variations observed in STs' unfolding personal struggles whilst in the midst of their training. For instance, for Stacey, personal conflicts were encountered in relation to their 'immense' workload persistently encroaching into her personal time. This led to feelings of guilt with having limited quality time devoted to her partner which particularly upset the stability of both her personal and professional identity. For Tracey, her training progress was disrupted when unforeseen personal crises arose in terms of having to deal with a family bereavement and relationship breakdown. This had impacted on her emotional well-being and how she felt about herself in her endeavour to continue on with her school practice.

Tracey's personal well-being was also negatively impacted on by training experiences situated in her LP, stemming from her strained relationship with a fellow teacher. Similarly, Stacey also faced persistent struggles with her relationships with her school-trainer and other staff. For Tracey, her personal struggles were of a different nature. She completed her training at the school she attended herself as a child and where her mother had been a long serving science teacher. Hence, firstly it could be argued that this had subconsciously put additional pressure on her knowing that she needed to make a good impression because especially with her mother working in the same department. There was an indication that Tracey put pressure on herself in her quest to be as good of a science teacher as her mother but in her own unique style. Secondly, relationships with her pupils may have been affected once pupils acknowledged her mother also worked at the school. More strikingly, data suggested that sub-consciously it affected Tracey in terms fearing how she would feel about her own

teacher identity in a school where previously her identity was that of a pupil. Moreover, teachers who had taught Tracey were still working at the school, which occasionally made her feel like she was still perceived to be a school student rather than a professional member of the teaching team. This finding illuminated a power struggle which existed in her quest to be recognised as professional teacher. Hence, this study advocates for STs' to be placed within neutral training grounds to prevent prior influences impinging unnecessarily on STs' training experiences.

### ***5.2.11 Situated identity: combined influence of contextual factors & learning communities***

There is much attention in existing literature on contextual factors and the role of interactions with others in the workplace can play in influencing STs' training experiences and in shaping their teacher identities (Beijaard et al., 2004; Korthagen, 2004; Goos, 2005; Eraut, 2008; Saka et al., 2009; Simon et al., 2011; Izadinia, 2013; Saka et al., 2013). In this study, the situated dimension of identity was examined through STs' voiced training experiences situated in the contexts of HEI/DRB and school placements. This section therefore offers an integrated discussion of influential contextual factors coupled with key characteristics/conditions of learning communities (HEI/DRB and schools) which exerted most dominance in terms of identity development. Valsiner's zone theory concepts of ZFM and ZPA referred to throughout discussions on the situated dimension of identity.

Previously, researchers have unanimously contended that STs' can encounter both negative and positive changes in their attitudes, values and perspectives about the teaching profession once they are exposed to school workplaces and become acquainted with teaching practices and norms (e.g. Smagorinsky, 1995; Beijaard et al., 2004; Korthagen, 2004; Smagorinsky et al., 2004; Flores and Day, 2006; Liu and Fisher, 2006; Lamote and Engel, 2010 and Izadinia, 2013). They maintain contextual factors are culpable for this because of the multiple impacts these can have on social relationships and interactions with others in diverse environments which in turn are pertinent to identity development. Findings mirror this claim with STs' identities being shaped both positively and less positively through collaborative interactions with others within their teacher education programmes (in the contexts of HEI/DRB and school) and outside of school (evident from STs' prior experiences) learning communities respectively. The following theme areas were found to be influential to shaping teacher identities in terms of the experiences they encountered.

Findings in this study support Wenger's (1998, cited in Izadinia, 2013 p. 700) claim that 'individuals develop an identity as they become a valid member of a community of practice where learning happens in collaboration with others and through activities situated in that learning community'.

However, for some STs' in this study, some less positive outcomes were revealed in terms of STs' participation in school learning communities. For instance, working successfully in collaboration with others was not always found to be the case. For instance, as study findings revealed, some STs' encountered immense difficulties in their endeavour to establish good working relationships with school mentors and trainers. This led to some STs' feeling like they were not able to feel like valid members of their learning communities. Also, the shorter school-placement comprising of approximately five weeks was not enough time to for STs' to establish themselves as valid members of their school and department communities. For some PGCEs, they expressed feelings of frustration once entering their LP having lost the working relationships they had worked so hard to establish in their DPs. Understandably, this transition created conflicts, leaving them feeling like they were having to 'start from scratch again'. This finding indicates that some STs' transition's in to their second placements may require greater facilitated support from ITT providers, programme personnel and schools to ease the transition by encouraging STs' to see it as a continuity of their training. It was evident in this study that STs' failed to recognise this which was reflected in their struggle to apply what they had learnt previously into their new school-settings. For Stacey, this issue had a more profound effect on her training experiences as she was required to return back to her main school and re-establish professional relationships with students and staff. This made the training experience for all three ST's an unsettling one. This finding again holds implications for policy-makers to give consideration to such issues in the design of future teacher education programmes and for ITT personnel at the programme level to ensure that STs' are offered facilitated support in their transition to new second-placements when adjusting to new school environments.

#### ***5.2.12 Influence of school socioeconomic contexts on STs' training experiences***

Overall, there was mixed findings revealed in terms of the relationship existing between identity scenario's that each of the three ST's were experiencing in the relative advantaged and/or disadvantaged school contexts they were working in. For those STs' whose experiences were judged to fit into Scenario's 3 (two dominant dimensions) and 4 (three conflicting dimensions) were training in FSM 3 and FSM 4 schools. For instance, for Stacey and Tracey, the identity scenarios they encountered were directly related to school contexts itself rather than the socioeconomic backgrounds of each school. Study findings also suggest that in some cases, no association existed between the identity Scenario's STs' experienced and the socioeconomic background of placement schools. This is illustrated in Tracey's case study which showed that her experiences were judged to fit Scenario 3 whilst training in FSM 3 (DP) and FSM 1 (LP) school's respectively. For instance, Tracey appeared to encounter more intense experiences with having been exposed to a greater combination of negative

influences in her LP school. She had found it increasingly difficult to solely manage her difficulties and sought help from her HEI. Prior to seeking this help, it was apparent that she struggled to sustain a positive and stable sense of identity which some would argue demonstrated a lack of resilience and vulnerability. Interestingly, Tracey encountered more positive experiences in her DP (a FSM 3 school). The presence of positive life (e.g. support from family and friends) and work (e.g. support networks in HEI and school) influences were imperative in maintaining the progress she made. Similarly, George's training experiences were judged to fit scenario 2 in a placement-school that was categorised to be a FSM 3 school. These findings suggest that in some cases there were associations between STs' training experiences and school socioeconomic backgrounds. In other case, this did not appear to be the case which suggests that in this study, other interplaying factors (e.g. school contexts, support, professional relationships, discourses etc) were more influential in shaping STs' experiences and subsequent science teacher identities. However, all STs' did voice their belief that the type of school was influential in shaping training experiences. Some even voiced that some STs' were 'lucky' to be in good schools which they believed it also signalled quality ITT provision would be offered. But as findings show, this was not always the case (e.g. as reflected in George's and Tracey's case studies).

### ***5.2.13 The ZFM offered in HEI/DRB & in school learning communities***

This section is segregated into sub-sections which critically examines STs' experiences in their situated dimension of identity (found to exercise most dominance in shaping teacher identities) in the contexts of HEI/DRB and school learning communities. It provides an integrated discussion (due to the inevitable overlapping nature of research findings) of the two ZFMs that was made available in both training contexts and how these contributed towards shaping STs' identities as science teachers. Only the most pertinent themes that appeared to exert strong influences on shaping teacher identities are discussed due to word count stipulations.

#### ***Atmosphere & ethos in HEI/DRB & school learning communities***

The atmosphere in the HEI context for PGCEs was that of positivity and had a collaborative air about. The HEI's ethos revolved around bringing the learning communities of academic research (community of enquirers) and teacher education together. Hence, a strong and stable learning environment existed where STs' felt well supported by HEI personnel and fellow peers. This created a relaxed learning environment that made learning experiences more engaging and enjoyable. This collegial atmosphere was highly valued by all PGCEs, particularly the support aspect of it (e.g. the

continuous motivation, emotional and professional support that was offered). It created an open ZFM which gave STs' the freedom to share their thoughts and concerns openly without feeling uneasy. Interactions with other peers and professional staff helped them settle in as university students and eventually prepared them for the professional world of teaching via engaging in professional dialogues. Conversely, Stacey spoke less about the learning and training atmosphere that was created when attending their DRB sessions. This is not surprising considering most of their time was spent in school environments. What Stacy did enjoy was the opportunity to have a day out of school where they could meet with fellow GTPs and discuss aspects of their course collaboratively.

The atmospheres that existed in some STs' placement-schools and science departments were infused with tensions and a lack of collegial atmosphere sometimes existed (e.g. Tracey's and Stacey's schools). These findings indicate that senior management teams in some schools failed to offer stable teaching and learning environments. This study argues that these conditions hindered students training and learning experiences identity development. Contributing to this atmosphere particularly in departments was the strained relationships some STs' formed with school mentors and other teaching staff. This was particularly illuminated in Tracey's case study which revealed circumstances that appeared inappropriate to Tracey's training needs. The department atmosphere was infused with tensions and unprofessional working relationships existed between teachers in the science department. This was a striking finding as professionals in the work place are meant to act as inspirational role models. In Tracey's case, they only caused friction and gave a bad impression. This affected the professional relationships that Tracey formed with colleagues in her department particularly with one teacher (see Section 4.3.11, p. 108). This somewhat had created an unstable and uncomfortable learning environment in which Tracey was required to work in. Schools therefore need to do more in terms of modelling greater professionalism in the school workplace. This study finds that establishing productive professional relationships with other members of the school community was pivotal to the development of STs' identities as science teachers.

### ***The importance of professional relationships, dialogue, feedback & nature of support***

Study findings suggest more work is needed to improve the provision of training support and mentoring networks (especially one-to-one coaching/mentoring/tutoring) particularly on employment based routes (DRB in this case) and school learning communities. Due to extensive nature of findings, separate sections are devoted to those emerging from HEI/DRB and school learning communities.

### *The nature and level of support received in HEI & DRB learning communities*

Discrepancies between the support offered on PGCE and employment based routes have previously been documented (e.g. Hobson, 2006 and McLay's, 2007). The present study too reveals similar findings with mixed feelings expressed amongst STs' about the nature and adequacy of support received from HEI/DRB. For instance, for PGCEs, the majority felt satisfied with the level of individualised support that was available and considered it to be pivotal in sustaining their motivations at times of difficulty. This is illustrated in Tracey's case study where emotional and professional support was pivotal in her decision to remain on the course when encountering the struggles discussed previously. Similarly, George and Tracey's case studies both also reveal a heavy reliance on backup support from university. They were even given the option to be 'pulled out' from their schools, a privilege GTPs didn't have. But, can such support be considered to be a privilege or an easy way out? Was this extra support actually detrimental to PGCEs identity development in the long run? For instance, in Stacey's case who experienced Scenario 4 (three conflicting dimensions), she was expected to persevere and had no choice but to tackle multiple training challenges encountered. Thus, it was not surprising to find she was less satisfied with her limited DRB support having been left to her own devices. Having spent the majority of her time in school was partly culpable for this. Her struggles were magnified in her main school where again she expressed receiving inadequate emotional and professional support. This left her feeling vulnerable and alone which heightened her anxieties and stress levels which had detrimental impacts on her emotional well-being, resulting in deferred completion. However, some would argue that by allowing her to experience such 'praxis shock' was the best approach to take. By having exposure to difficult teaching situations early on could create opportunities to further develop resilience and improve effectiveness in terms of managing such difficulties in the future. This somewhat resonates with Larson and Philips (2005) finding that STs' in their study developed a sense of agency and resistance at their sites of conflict which also simultaneously strengthened STs' identities as teaching practitioners. On contrary, other may argue such exposure to difficulties and 'praxis shock' so early on could also deter STs' from the profession late on. This was certainly evident in Stacey's case with having felt the need to defer her training. Fortunately, Stacey did anticipate returning to her training which she did and completed her QTS year, once new support mechanisms were inaugurated on her return. What encouraged her to return was the faith her second school restored in her prior to deferring as her training experiences had be a lot more positive in a school learning environment that was much more supportive.

In summary, the above findings are quite refreshing firstly in relation to the PGCE programme when considering Hobson et al's (2006) claim that demands on HEI-based training are normally high in comparison to employment based routes with having larger numbers of STs' enrolled. Therefore, one would surmise from this claim that support provision would be strained, however findings in this study confirm this certainly wasn't the case. Secondly, findings regarding the GTP programme do not resonate with Hobson et al's (2006) claim that newly designed and implemented employment based programmes are considered more effective in fulfilling STs' training needs especially in current school contexts. The GTP programme in the study was too newly designed but failed to cater for STs' particular training needs (e.g. emotional/professional support, lesson planning, post observation feedback etc). However, findings do mirror those in Findlay's (2006, cited in Izadinia, 2013 p. 703) study in relation to how 'praxis shock' was experienced by some PGCEs (e.g. Tracey) in their 'transition from the semi-protected environment of teacher training programmes to school environments' where STs' went from being well-supported to receiving limited praise and feedback. This clearly came through in the experiences STs' voiced in this study and appeared subsequently influence their teacher identities.

### ***Support from NQTs & peers***

The professional (e.g. lesson planning, constructive feedback) and emotional support PGCE peers gave each other through professional dialogues in addition to NQT support was positively received. As Bakhtin (1981) points out, how meaning are generated in the process of dialogic interactions between individuals. The professional dialogues exchanged between PGCE peers and NQTs supports Bakhtin claim as these were found to be imperative to STs' and how they felt about themselves as teacher. NQTs had the necessary personal characteristics such as empathy and could relate to STs' having recently been through the training process themselves. This study argues that this a fundamental quality that school mentors in this study lacked. This was more so the case when realising other novice teachers too experienced ups and downs whilst they trained. Therefore, PGCEs felt they could relate and openly discuss their concerns with NQTs and gain reassurances from them without being judged. For Stacey, there were much fewer opportunities to meet with fellow peers on a regular basis whilst in school. Furthermore, NQTs were not always available in school to talk to which made the training journey more daunting particularly for Stacey. This has implications at policy and programmes level in that more networking opportunities with other novice teachers need to be integrated especially in employment based routes. The NQTs also played an integral role in providing a snap shot picture of what the NQT would involve which prior to speaking with them was a 'black whole' for STs' that had not been discussed. A shocking finding related to Stacey's comment

that she had no idea she was required to complete an NQT year and was under the impression she would be qualified within the year. She voiced how if she had known this prior to starting, she would never have entered the teaching profession. These striking finding highlights that more efforts are needed from programme personnel to ensure STs' are made fully aware in advance of what is required from them once they embark on their NQT year. Prior awareness in turn could alleviate the apprehension some STs' feel at the prospect of entering their first teaching practice. The finding that NQTs were found to be imperative to STs' experiences and identity development points to implications for policy-makers to consider providing incentives for NQTs to play a mentor role in terms of providing the emotional support that school mentors so often fail to provide. This in turn may alleviate pressures of school mentors and improve their overall effectiveness in the long run.

The above findings are somewhat alarming especially at a time where teacher education is undergoing turbulent changes with the ITT model becoming less HEI-based and more school-based. Hence, for training schools to provide outstanding training, there is an urgent need for schools to address such issues by adopting more robust training procedures for school mentors and ensuring those chosen as mentors have a genuine interest in the role.

### ***The nature & level of support received in school learning communities***

As research findings show, professional relationships STs' established with subject mentors, professional mentors and other teaching staff (e.g. teachers of classes to whom each ST was assigned to) were pivotal in shaping STs' identities as science teachers. STs' gave varying ratings with regards to the quality of support they received highlights how some school mentors/trainers failed to scaffold some STs' individual learning experiences. For example, George's struggles in his DP school were the result of receiving inadequate professional support and training because of time constraints. This could have easily painted an appalling picture of the state of today's teaching profession. However, George fortunately took this negative experience on the chin and did not allow it to deter him from his training.

Others expressed how emotional support from school mentors was inadequate. For instance, some school mentors appeared to lack in particular qualities desirable in mentors such as being empathetic, approachable, being available (with juggling other responsibilities) and in providing critical but constructive feedback and advice. Furthermore, study findings revealed that some STs' felt unhappy with the nature and style of feedback in terms of it often being unconstructive, superficial and one way with some mentors highlighting positive and negative points followed by a few suggestions for



improvement. It was therefore not surprising that some STs' found this to be quite restrictive. George's case study indicates how he received inadequate support in his DP school when encountering training conflicts and tensions. It was refreshing to see that George perceived these difficulties in a positive way by acknowledging these were beneficial to developing his resilience and teacher identity in the long run.

Careful selection of mentors and providing incentives may all prove beneficial to improving mentoring provision. Only then can training provision be individualised (e.g. age related or in line with teacher development stage) and tailored to meet STs' needs through prescribing differentiated support (emotional and professional) through illuminating pre-training concerns earlier on in the training process. After all, this study reveals in-school and personal support is key to developing teacher identities in terms of improving STs' professional commitment, confidence, resilience and emotional/physical well-being. For Tracey, findings suggest how overall she felt satisfied with her school experiences and appeared to become more socialised into the teaching profession through exposure to both her school and previous work lab environments. It would have been expected that Stacey would have felt the same as Tracey having previously worked in schools. However, for Stacey, it was the lack of appropriate support she received in her main school context that was culpable for this. Both Tracey's and Stacey's case studies illustrate the powerful influence the tensions both encountered had on their training experiences and how the strained relationships with their school colleagues affected their overall well-being, confidence and construction of teacher identity as science teachers. This finding highlights again the need for schools to provide effective mentoring support through application of diverse skills and strategies at different stages of STs' development. Such measures are needed to ensure others do not encounter what Stacey endured.

Studies by Malderez and Bodoczky (1999) and Harrison et al (2005) also report similar findings. This again has implications at policy and ITT programme level to ensure training for mentors is improved so that the process of becoming a science teacher is a smooth one. In turn, this could arguably address teacher retention issues in the future as STs' would hopefully be less inclined to leave the profession later in their careers.

However, this finding highlights the pivotal role effective mentoring and support networks in school can play in developing STs' confidence and subsequent identities as science teacher.

Hence, there are implications for teacher educators to ensure well in advance that placement-schools in which STs' are placed in provide an adequate level of support within training environments which actively supports STs' training needs and enables professional working relationships to be established

with ease. For this to be achieved successfully, school mentors firstly need to be adequately briefed by partner HEI's/DRB's and offered necessary mentoring skills and strategies to ensure training programmes in school can be tailored to meet individual needs. Secondly, schools need to ensure allocated mentors are allocated ample opportunities to meet with their STs' without having to contend to other responsibilities which may detract them from their mentoring duties. Fortunately, research in this particular field is increasingly growing as evident in studies by Malderez and Bodoczky (1999) and Harrison et al (2005).

#### ***5.2.14 The ZPA provided in HEI/DRB & school learning communities***

Particular training activities and aspects of course provision situated in these learning communities were found to both challenge and support the development of STs' identities as science teachers. Again, only an integrated discussion of those themes which came through as having strong influences on STs' identity development and feelings about themselves as teachers are reported.

The PGCE and GTP programmes in this study were designed to provide a ZPA which equipped STs' with the necessary subject-knowledge and pedagogical skills required to teach in everyday science classrooms. The PGCE route offered insights into the key philosophical foundations underpinning science teacher education, something that DRB sessions lacked. The PGCEs also had significantly more contact time with their HEI personnel in comparison to GTPs which increased the ZPA offered in HEI. The PGCEs were actively encouraged to engage in group activities, seminars and taught sessions which encouraged interaction and professional dialogue between all parties involved (e.g. school mentors/trainers, fellow peers and HEI personnel). These activities enabled STs' to enter the zone of proximal development where less experienced STs' were able to enter a new area of potential development. This was accomplished through professional discourses with more experienced STs' and HEI personnel. With PGCEs having spent more time in their HEI in comparison to GTPs, it was not surprising that PGCE data indicated that STs' were more compelled to talk about aspects of HEI course content/preparation (without specific promoting). This is because the ZPA provided in HEI proved pertinent once PGCEs had entered their DP schools.

In the context of Stacey's DRB, she spent considerably less time with programme personnel with only a day dedicated to training sessions per week. Sessions in themselves were intensive in nature which restricted opportunities to converse with fellow peers. Opportunities to interact with peers were also limited for Stacey in school with there being no other science trainees in department. Therefore, their time was spent in a school environment with lacked opportunities for them to engage in

professional discourses and share learning experiences due to the busy nature of their science departments. These issues arguably hindered their identity development. This study therefore advocates for future employment based routes to reconsider their design of their programmes by integrating greater opportunities for STs' to meet regularly with fellow peers to encourage sharing of practice and experiences via professional dialogues.

Hence, in the case of GTPs, it was of little surprise that both case trainees required more prompting in interviews but they still provided vague responses regarding their DRB course provision/content. Another explanation for this could be linked to both being so immersed in their everyday school life that they had little opportunity to consciously reflect on DRB training sessions once they returned to school. For instance, Stacey appeared more compelled to share her in-school experiences which dominated her work and life. The diminutive time both GTP's spent with DRB personnel highlights implications for policy-makers to ensure future employment based routes are designed with greater contact time allocated to STs'. This in turn would also address the issue Stacey highlighted in wanting more theoretical based training. At ITT programme level, study findings suggest how programme personnel once again need to be responsive to STs' individual training needs if curriculum changes are not feasible at policy level in the current economic climate.

As study findings revealed, the following themes emerged as being pertinent to both PGCEs and GTPs in terms of highlighting areas of training activities (ZPA) where more/less preparation and more/less support (ZFM) was required in both training contexts:

- Freedom to develop own teaching style in school
- Classroom sharing and hopping in school
- Lesson planning
- Subject knowledge
- Team teaching opportunities
- Assertiveness and confidence
- Behaviour management
- Opportunities to reflect
- Observing other teachers in school

These particular aspects of course content and provision are discussed in terms of both challenging (e.g. as reflected in tensions experience in HEI/DRB and teaching sites respectively) and supporting

STs' identity development. This includes discussions of the two ZPA's provided each by HEI/DRB and schools respectively. Furthermore, it explores whether STs' were equipped with pertinent pedagogic strategies and in-depth subject-knowledge through the learning activities that were available. According to Valsiner (1997), it is integral for the ZPA to be within an individual's (in this case, STs') ZFM. The actions (aspects of course content delivered) promoted must therefore be accessible to STs' for their teacher identities to develop. The data from PGCEs in this study show that the HEI in question was at times unsuccessful in providing STs' with the necessary ZPA needed to meet the demand exerted on them once in school placements. This consequently impacted on STs' progress which restricted them from conveying particular teaching practices adequately. This finding indicates how discrepancies can emerge between the ZPAs provided by personnel on teacher education programmes and in school placements and how both ZPAs can sometimes failing to coincide.

The themes highlighted above are discussed next with implications of findings also included.

### ***Freedom to develop own teaching style in school***

Study findings suggest that STs' ZFM was not restricted in terms of feeling pressured by mentors/trainers to adopt mimetic teaching approaches. Instead they were actively encouraged to develop their own pedagogical style and provided much scope for identity development to occur. As Smagorinsky et al (2004) maintain, such mimetic approach coupled with strict mentoring guidance provides little scope for STs' to develop their teacher identities. Therefore, this was a refreshing knowing STs' were given the freedom to develop their own teaching styles. This study therefore argues that providing STs' with the scope to develop their own style of teaching from the outset of their training can not only contributes towards shaping science teacher identities but also improve their resilience, agency and effectiveness in their future careers.

### ***Classroom sharing & hopping in school***

Research data revealed how those STs' who were required to classroom share and continuously had to move from one classroom to the next. This was really 'unsettling' and impacted on the stability of their teacher identities. This appeared to affect STs' ZFM in school because some classrooms lacked the availability of teaching resources that were needed to deliver planned lessons. For instance, some classrooms had limited access to ICT facilities, some electrical equipment failed to work (e.g. sound speakers) and with some classrooms being unsuitable to conduct experiments in. Classroom sharing

put additional pressure on STs' unnecessarily with having to transport pupils' exercise books and resources to other classrooms and having to return them back. This wasted valuable lesson time with having to set up lessons which could have been devoted to teaching pupils. In this sense, pupils ZFM and ZPA was also restricted which this study argues has implications for schools and their pupils learning outcomes through restrictions teachers face. Thus, STs' would have preferred their own allocated classroom's to feel more established which STs' thought would also improve their working relationships with pupils. Furthermore, STs', particularly PGCEs would have welcomed more autonomy whilst training, giving them a sense of greater responsibility. The findings documented here certainly resonate with what Hobson et al's (2006) also found in their study.

### ***Lesson planning***

As the Professional Standards for QTS (TDA, 2007, paragraph Q22) in England points out, STs' are required to:

*'Plan for progression across the age and ability range for which they are trained, designing effective learning sequences within lessons and across series of lessons and demonstrating secure subject/curriculum knowledge'.*

Lesson planning is therefore a fundamental technical aspect of teaching and is 'recognised as a key skill that beginning teachers have to develop' (Mutton et al., 2010 p. 399). Sardo-Brown (1996 p. 519) define lesson planning as being the 'instructional decisions made prior to the execution of plans during teaching'. Findings in the present study revealed it to be one of the most important teaching competences for STs'. This was ironically reflected in STs' sense of dissatisfaction with training provision offered in HEI/DRB in terms of addressing out of class practices such as lesson planning (planning a sequence of lessons, timing of activities, how to differentiate effectively and the style of activities to incorporate for particular classes). Culpable for was the timing of when the HEI session on lesson planning was delivered. It was alarming to find that the topic was only discussed with PGCEs once they were already in their DP schools. The issue worsened for some STs' with schools who also failing to provide an adequate ZFM (support) and ZPA (failed to adequately promote skills and approaches to planning lessons). It appeared that some schools were oblivious to what STs training needs were. Perhaps an explanation for this could be that school mentors were under the impression PGCEs would have had some form of training in their HEI prior to entering their school practicum. In light of these finding, the majority of PGCEs were left to their own discretion and some were left struggling when making every to plan outstanding lessons which became a time consuming task. This left some STs' feeling despondent, impacting on how they felt about their capabilities and identities as classroom practitioners. These findings hold great implications for programme personnel

to ensure timetabling of sessions are in line with STs' training need once they enter school placements. To accomplish this, the answer again reverts back to improving communication between HEI/DRB – school partnerships to ensure the two ZPAs offered on teacher education programmes coincide. This in turn would improve STs' training experiences and how they feel about themselves as teachers by feeling better equipped in planning and delivering effective lessons. Although this study argues that the ZPD offered to STs' is imperative to identity development, I also agree with Mutton et al (2010, p. 399) claim that:

*'learning how to plan is a feature of beginning teachers' learning well beyond the PGCE year [and in other ITT programmes] ...it is through planning that teachers are able to learn about teaching and through teaching that they are able to learn about planning'.*

This discussion is imperative to the next section and feeds in by arguing lesson planning is key to ensuring subject-knowledge is transferred to pupils in an accessible, effective and engaging way.

### ***Subject knowledge***

As study findings indicate, those STs' who expressed confidence with their subject-knowledge were somewhat left feeling despondent because of feeling ill-equipped with the Pedagogical Content Knowledge they required to know 'how' to teach subject matter at a level that pupils could grasp. This signals that greater awareness and acknowledgement of the link between PCK and SCK is required on teacher education programmes and in schools. This in turn would equip STs' with the best knowledge on how plan effective lessons through incorporation of suitable science activities to ensure subject knowledge is transferred to pupils in a reachable way.

The finding that STs' were not always given the opportunity (due to timetabling constraints) to teach science specialisms they were either not specialised in or generally found as weaker subject also has implications for HEI/DRB and schools. For instance, some STs' found it difficult to teach particular scientific enquiry skills and would have welcomed more support in this area. Once again, perhaps greater efforts are needed well in advance to ensure STs' training needs are acknowledged in this respects (e.g. through frequently examining STs' needs analysis audit). In turn, perhaps this would offer better scope for schools to allocate classes accordingly to ensure weaknesses in subject-knowledge are addressed. In this respect, programme personnel would also need to step up by actively encouraging STs' to keep their needs analysis audit up to date. Implications at policy level point to the need for policy makers to consider extending the use of needs analysis audits across the duration

of the training year by making it an ITT course stipulation. This study argues how such a measure would go a long way in terms of further developing STs' identities as teachers.

### ***Team teaching opportunities***

Aspects of the discussion on subject knowledge above somewhat feed into this section. For instance, both George's and Tracey's case studies show how opportunities to team teach were key in enhancing their subject knowledge and construction of their identities as science teacher. George reaped great benefits from team teaching which allowed him to observe fellow peers teach and learning from teaching experiences collaboratively. He himself advocates for future ITT programmes to incorporate greater opportunities to team teach both in HEI and in schools, a recommendation this study supports. For Tracey, her team teaching experience whilst in her HEI (A 'level biology) was a 'very rewarding' experience which not only enhanced her subject-knowledge but also promoted professional discourses amongst fellow peers which she found imperative to her reflective practice.

### ***Assertiveness & confidence***

As case study findings show, some STs' particularly the PGCEs raised concerns and dissatisfaction in relation to personal characteristics such as struggling to portray confidence and assertiveness in the classroom. The two GTPs appeared more confident and assertive with having spent the majority of their time in school placements. This suggests that the length of exposure to school and classroom environments can impact on how STs' feel about their confidence and themselves as science teachers. Furthermore, mentoring styles and associated pedagogies could also provide an explanation to why some STs' felt more confident and assertive than others. For instance, it was evident during interviews that some STs' did not feel they could talk to particular school mentors because of their stern style of mentoring. Hence, they found it difficult to approach them fear that they may be perceived as weak practitioners and affect their assessment marks. This subsequently restricted the ZFM that was available in school. This holds important implications for ITT providers and personnel to be more aware and receptive of such subjective feelings by actively encouraging STs' to talk about these. Offering objective reassurances that such feelings are a normal part of becoming a teacher could also prove beneficial for STs'. Therefore, ITT providers and personnel both need to ensure mentoring styles incorporate some scope to address such pertinent issues relating to low level confidence and assertiveness. This in turn would make the training process more enjoyable and productive for STs'. For mentors to achieve this, it is imperative that they too are provided with suitable training and conditions to work in for instance, having more allocated time and scope to deliver mentoring duties

with no distractions. This discussion links into the next section with assertiveness and confidence both being personal characteristics pertinent in managing behaviour.

### ***Behaviour management***

This discussion here feeds into previous discussions on lesson planning and subject knowledge. The study acknowledges that encountering issues with poor student behaviour and its management is an inevitable part of teachers everyday lives. However, findings from the study revealed that the nature of science topics taught often impacted on pupil engagement and behaviour (e.g. as Tracey's case study illustrated).

### ***Opportunities to reflect***

Researchers have previously signalled the significant relationship between creating in learning communities an atmosphere of collaboration/reflection and identity development in STs' (Franzak, 2002; Assaf, 2005; Seidl & Coonley, 2009; Trent, 2010; Farnsworth, 2010 and Izadinia, 2013). As findings in this study indicate, all STs' (more so for PGCEs) had opportunities to reflect on their teaching and learning practice. The following reflective activities proved fruitful in some STs' training journeys which were imperative to the construction of their science teacher identities (both positively and negatively): video recording lessons; lesson evaluations and feedback post observations which actively encouraged professional dialogues; reflective journals and assignments (PGCEs)/case studies (GTPs). However, concerns were raised about the relevance particular assignments had to practice in addition to the timing of deadlines when assignments needed to be handed in. Concerns for the latter point related to how assignment workloads impeded on STs' teaching progress and created additional pressure nearer to STs' final QTS assessment period. This logistical issue holds implications for programme design and school mentors in ensuring that such pressures are alleviated for STs' at such crucial times of their training.

In addition, electronic mediums of communication such as online blogging and networking sites were particularly impertative ways for STs' to reflect collabartively with fellow peers and to stay in touch. This form of communication proved to be intergal particularly when STs' were in school placements and contact with peers and HEI personnel was limited. Online blogging and social media were effective networking approaches used for PGCEs to keep connected with peers on from their HEI learning community. Furthermore, STs' online blogs were used by the PGCE course leader as a means to monitor their practicum experiences. These findings indicate that STs' on employment



based routes may also benefit from such having access to such communicative avenues. In this study, it was clear that Stacey did not have such opportunities integrated into their GTP programme which was disappointing. Study findings suggest that such networking opportunities would have benefited Stacey at her times of difficulty. Perhaps at programme level, employment based routes need to consider creating such networking sites for STs' or bring ST communities together by allowing them to join existing social networking communities set up in local HEIs? This would enhance opportunities for identity development by encouraging STs' to share resources, experiences via professional discourses. This study advocates the use of Skype as an effective way to share practicum experiences with others whilst in school placements. Moreover, for some STs', there was little scope to convey in-depth reflection collaboratively with mentors and other staff, indicating that mentors themselves require better support and professional development in relation to offering constructive mentoring discussions once lesson observations are completed. This finding feeds into Sections 5.2.13 (p. 158) and 5.2.14 (p. 164) respectively which looks at mentoring support in more detail.

### ***Observing other teachers in school***

This section brings the discussion of the situated dimension to full circle by feeding into all the themes discussed previously. It is essential for novice teachers to conduct lesson observations on the teaching practice of other teaching practitioners in real classroom situations. Such teacher observations did prove to be fruitful in the present study in terms of their identity development as science teachers. Study findings reveal how some STs' spoke fondly of the opportunities they had in gaining experiences first hand through observing other teachers modelling several teaching strategies in everyday classroom environments. However, others reported how they would have preferred to have observed more experienced science teachers which was not always the case. This has implications for school mentors in ensuring ample opportunities are available for STs' to observe the best teachers at work which in turn may provide food for thought for STs' on how to develop their own science teacher identities. This discussion somewhat feeds into the next section which explores STs' opportunities to reflect on practice. For example, having had the opportunity to observe other teaching practitioners, it enabled STs' to reflect on these observations to identify ways they could improve their own practice.

### ***Final comments***

It is clear from all the issues highlighted above that all issues could be easily addressed and rectified by improving communication between teacher education programmes and school partnerships. This

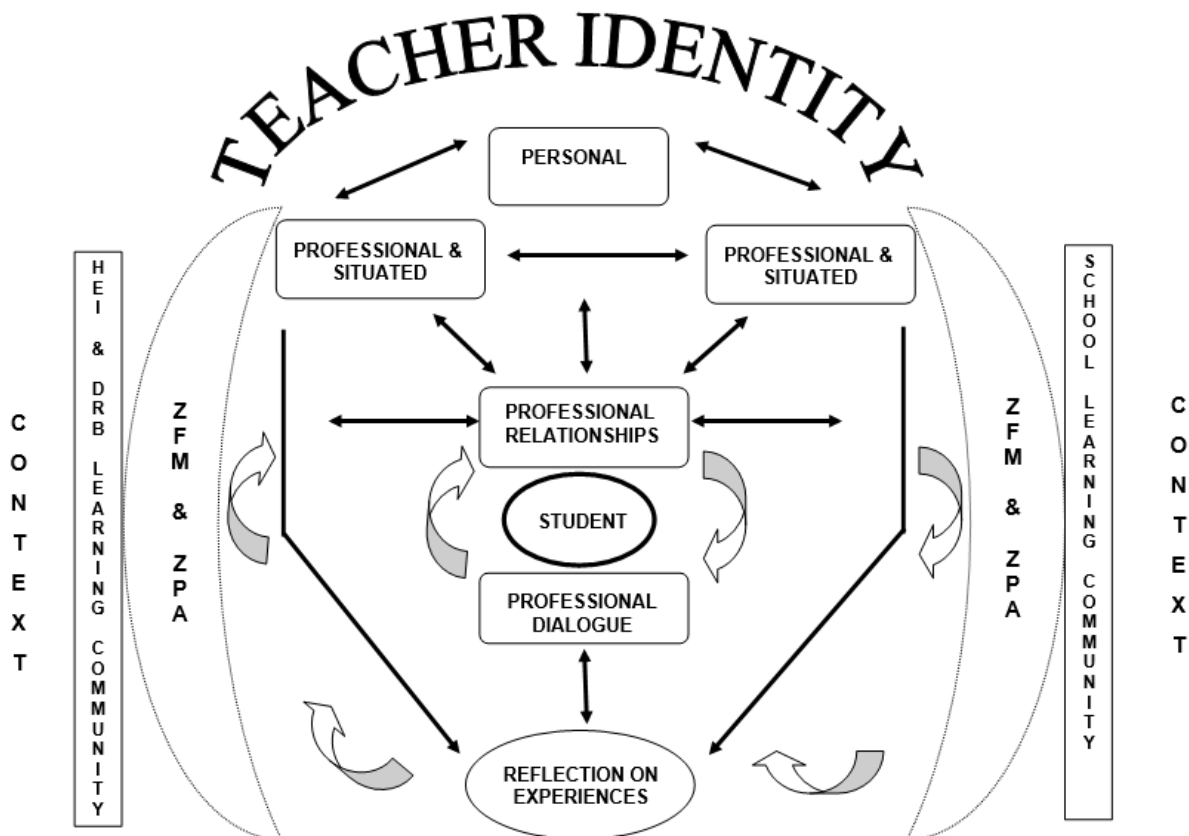
message appeared to come through in this study as a whole as reflected in the vague responses STs gave when asked to share their feelings about the partnership. It became increasingly apparent through interviews that communication between HEI/DRB and schools deteriorated once the training process was in full swing. This breakdown in communication may arguably have had detrimental impacts on STs training journeys with HEI personnel failing adequately update school mentors directly of STs training needs. This finding highlights the importance for both parties to clearly address STs existing pedagogical and science content knowledge prior to entering their initial school placements. It is only then that schools can be expected to address the remaining gaps in knowledge that exist. Hence, this study argues for teacher educators and policy makers to begin using insights such as those gleaned from case studies here to better understand and support STs ITT year. In turn, it is hoped that STs school experiences and subsequent identity development would be improved. Thus, findings hold implications for teacher education curriculum planning and for training provision offered in schools by highlighting potential gaps that need addressing. The question this study raises is whether greater flexibility in the course content delivered within ITT training would prove more beneficial in terms of catering for individual STs training needs?

### **5.3 Conclusion**

The discussion chapter will now be closed by providing a synopsis of the present study by presenting an integrated model I have devised by bringing together components from Wenger's idealised social theory of learning model, Rodgers and Scott's (2008) four basic assumptions of identity and Day & Kington's (2008) teacher identity model. As Lave and Wenger (1991 p. 53) maintain, 'learning...implies becoming a different person...learning involves the construction of identity'. Settlage et al (2009 p. 105) claim that identity is not merely the accumulation of experiences, it is also 'a path that is created as the individual moves from one event or context to the next' and 'learns to position herself in ways that allow her to be recognised as a certain kind of person' (Saka et al, 2013 p. 1223). Therefore, when STs' come to their ITT courses, they have the opportunity to reconstruct identities formed in roles/job/careers.

The model in Figure 19 (p. 173) has been devised to offer a visual representation to assist the reader to further understand how STs' personal, professional and situated experiences can impact on their teacher identities. To begin, the 'teacher identity' heading at the top of the model symbolises an umbrella under which the three constructs of identity examined in this study are positioned; the personal, professional and situated dimensions of identity and accompanying ST experiences. These identity dimensions are drawn from Day and Kington's (2008) teacher identity model and were

adapted in the present study. Personal identity in this study was examined in two ways; (1) the prior experiences STs' brought to their ITT courses and (2) how unfolding training experiences impacted on their personal lives and vice versa. Professional identity in this study referred to STs' reasons for entering the teaching profession, professional expectations about their training and aspirations for the future, the type of teacher they aspired to be in addition to feelings about their teacher standards, workload and overall professional support they received.



**Figure 19** Integrated teacher identity model which has been designed to reflect the pertinent findings in the present study.

In addition, although STs' personal and professional experiences were pertinent to identity development, it was the situated or socially located dimension of identity that appeared to exercise the most dominance across case studies. STs' experiences in this particular dimension were explored using Valsiner's ZFM and ZPA concepts. In Model, the arrows between each three of these dimensions represent the inseparable overlapping nature of each one. With the ST being the focal point of the study, he/she is positioned in the centre of the model. Next, the study findings confirm that professional dialogues/discourses and relationships with others were pivotal to STs' knowledge acquisition and identity development. Hence, these two components are also positioned centrally in the model. On each side of the model, the contexts of HEI/DRB (left) and School (right) school learning communities are presented each with their own ZFM and ZPA offered as represented by the

left and right crescents. Reflection on all key personal, professional and situated experiences (e.g. teaching activities) was also critical for the development of teacher identity to occur. Reflection on experiences is presented in the oval shape at the bottom of the Model which endeavours to depict a mirror which symbolises the significance of reflective activities (represented by thicker arrows) by resembling them as reflective light waves which are dispersed from the mirror and across the model. Hence, this study finds reflection to be key to shedding light on such experiences can shape teacher identities. Study findings support Day and Kington's (2008 p. 7) claim that 'teacher identities are neither intrinsically stable nor intrinsically fragmented' but are 'more or less stable and more or less fragmented at different times and in different ways'. 'This is according to the influence of the interaction of a number of personal, professional and situated factors' and experiences. This study found that emotional/professional support, teaching resources (ZFM) and teaching activities/skills promoted by more experienced peers, HEI/DRB personnel and school mentors (ZPA) was pivotal to the extent to which STs' could manage the scenarios they faced. These factors were key in determining the extent to which their resilience and identities as science teachers were development. The findings also show each case study offered in-depth holistic insights into the varying and unique experiences STs' in the context of science education encountered (as evident in the quantity of research data each case stud generated).

## Chapter 6. Conclusion

This chapter is presented in four constituent parts:

**Section 6.1:** offers an overview of the study in a nutshell;

**Section 6.2:** highlights conceptual links between study findings and the original contributions these add to the existing knowledge base.

**Section 6.3:** draws attention to research limitations.

**Section 6.4:** indicates other theoretical implications and recommendations emerging from the study in terms of highlighting research areas that require further attention.

## 6.1 Introduction

One of the key agendas for the Coalition Government has been to focus on the importance of teaching and to improve teacher education in England (DfE, 2014). Therefore, attracting the ‘brightest and the best’ to the teaching profession is considered the way forward in the Government’s ‘quest for improvement’ (DfE, 2014 p. 5). Enticing outstanding graduates to the profession is therefore a key strategy being used with them bringing rich personal and professional experiences to the profession in the hope of raising educational standards. The government focusses on ‘the quality of professional development experienced by teachers, using the best schools to design and deliver programmes that are rigorously evaluated for impact’. Although the Government recognises the importance of high quality teaching, I wished to gain holistic insights into the actual lived experiences of STs’ (in the context of secondary science education) to examine how they felt about their training experiences in the contexts of HEI, DRB and schools through their own voiced accounts. This provided rich insights into the quality of training and support STs’ themselves actually felt they received to determine if voiced experiences resonate and align with Government’s vision to provide outstanding teacher training in England. To accomplish this, it was important to consider all experiences STs’ bring to their training and to encourage them to be aware of their evolving identities as science teachers. I consider this to be a valuable area of research because it is hoped that STs’ would be encouraged to self-reflect more on their emerging teacher identities. Hence, STs’ would become more aware of their identities and be able to pinpoint their professional training and developmental needs in order to deliver outstanding teaching and contribute towards vision of becoming a ‘world-class teaching profession’. The development of STs’ identities as teachers has received renewed attention worldwide as reflected in the recent review of the literature by Izadinia’s (2013). This is because gaining comprehensive insights into teacher identity is argued to ‘enhance the ways in which teacher education programmes are conceived’ (Beauchamp and Thomas, 2009 p. 176). However, very few studies have been conducted in the UK which specifically focusses on exploring the personal, professional and situated experiences of secondary science STs’ and their role in shaping their identities as teachers. Hence, the present study aimed to address to this gap by exploring this exact phenomenon.

The focal point of this study were the three case study trainee’s who were selected from ITT programmes offered at one HEI (George and Tracey) and DRB (Stacey) in North East of England in the academic year 2011-2012. The aim of this empirical study was two-fold, firstly to capture fruitful and holistic insights into three ST’s (in the context of secondary science education) voiced accounts of their personal, professional and situated experiences and secondly to theorise these as identity

development. Therefore, each ST case study revealed that both highs and lows were encountered whilst training with aspects of their course content, support and training provision being voiced the most when talking about their experiences. The researcher used a qualitative multi-method research design; it conducted three individual semi-structured interviews (with three diamond ranking exercises included) with each of the three ST's, collected questionnaires (five open response half-termly questionnaires, one tick box questionnaire and one open response identity questionnaires). Thematic coding was utilised to analyse the qualitative data, while basic Likert type quantitative data was analysed by creating bar charts and formed supplementary data for the study's qualitative findings.

## **6.2 Conceptual links between the study findings & its original contribution to the existing knowledge base**

This study was conducted in the endeavour to make a contribution to the provision of quality teacher education for STs' in the context of science teacher education. The following theme areas summarised below highlight the study's key findings and offers insights of the original contribution this thesis makes to the existing knowledge base in terms of better understanding teacher identity through STs' lived training experiences:

- the importance of teacher educators to be aware of STs' reasons for entry into the teaching profession and the kind of teachers they aspired to be. STs' need to be encouraged to draw on their prior experiences/learning throughout the training process (e.g. their own schooling experiences, academic backgrounds, prior career(s)/job(s) and experiences working with young people). This study revealed through the vague prompted response STs' gave that they themselves did not actively realise how powerful these prior experiences were to their training process. Teacher education providers only appeared to give recognition to these experiences for recruitment and selection purposes and failed to promote awareness of the significance of these prior experiences in shaping STs' subsequent teacher identities.
- that STs' vague responses to interview questions revealed their lack of awareness of their own evolving identities as science teachers. Therefore, identifying new innovative ways to deliver teacher training which promotes awareness of identity development needs to become a key focal point of future research. STs' awareness of teacher identity must take centre stage in the design and delivery of the curriculum and cannot be ignored as it promotes reflection in STs' about themselves, their training experiences and the kind of identities they wish to develop as

science teachers. Beaucamp and Thomas (2009) encourage teacher educators to use imagination and reflection as tools to promote STs' awareness of their emerging teacher identities. Teacher education programmes are an ideal place to instil in STs' not only an awareness of the need to develop an identity but also the ongoing shifts that will occur in that identity. Hence, it is important that novice teachers are prepared for the challenges that accompany the process of developing strong personal and professional identities.

- Study findings suggest that to better understand factors which hinder or support identity development (and subsequently influence the stability/instability of teacher identities), teacher educators and STs' also need to take into consideration the wider influence of the following situated factors:
  - the appropriateness of course content, training provision and teaching activities offered to STs' by teacher education programmes because this can have significant impacts on STs' identities once they transition into their school placements. This study finds that the ZFM and ZPA provided in HEI/DRB sometimes failed to coincide with the ZFM and ZPA offered in schools. Hence, this points to the importance communication between the HEI/DRB-school partnerships in ensuring school mentors have clear understanding of STs' unique training needs once they enter their practicum to counteract some of challenges STs' encountered. The following theme areas emerged as aspects of training STs' felt positively (e.g. freedom to develop own teaching style in school, subject knowledge, team teaching opportunities, behaviour management, opportunities to reflect and observing other teachers in school) and less positively about (e.g. classroom sharing and hopping in school, lesson planning, subject knowledge, assertiveness and confidence, behaviour management, opportunities to reflect and observing other teachers in school). The following reflective activities were identified as being key in developing STs' identities: video recording lessons; lesson evaluations and feedback post observations; reflective journals and assignments (PGCEs) / case studies (GTPs).
  - STs' surrounding training environments in the contexts of HEI, DRB and schools learning communities and the ZFM each one provides (e.g. the stability of the learning and teaching environment, prescribing individualised mentoring support (mentors/other teaching staff) and emotional support offered (by NQTs) to STs' and



the availability of teaching resources). Saka et al's (2013) study reports similar findings.

- STs' relationships established (both positive and negative) with HEI/DRB/school mentors and teaching colleagues and the professional dialogues they were encouraged to actively engage in and produce (e.g. with peers, mentors and other teaching staff) and belonging to a community were prominent features across case studies. This encouraged STs' to collaboratively reflect openly on their training experiences.
- **Final comment:** Implications of study findings as a whole point to the need for ongoing efforts from policy makers and ITT programme personnel in ensuring that issues emerging from this study are openly addressed to improve STs' training experiences. Although STs' encounter their own unique experiences, what is clear is that professional development opportunities particularly for school for mentors is crucial if they are to provide individualised mentoring support to their STs'. Findings in this study reveal that at times school mentors too require support in terms of having more time to invest in STs' in order to respond immediately to STs' individual training needs.

Study findings suggest that shifts in STs' identities were inevitable when transferring from HEI/DRB to school contexts. This finding support Day and Kington's (2008 p. 7) claim that 'teacher identities are neither intrinsically stable nor intrinsically fragmented' but are 'more or less stable and more or less fragmented at different times and in different ways'. The stability and instability that STs' identities depicted at different times of their training was the result of the interplay of key personal, professional and situated experiences (as highlighted above) that acting upon STs' whilst in the training process. How they manage these shifting identities is down to the support they receive from their teacher education programmes and school mentors and other staff. The study also revealed mixed findings in terms of the relationship between the identity scenario each ST experienced and the relative advantage/disadvantage of school contexts in which STs' were placed in. This finding suggests that in some unique cases the socioeconomic background of schools may influence STs' training experiences and identity development (both positively and negatively). However, this study argues that regardless of a school's socioeconomic background, what is key is for all schools is to work collaboratively as a professional learning community to ensure STs' receive the best training and in turn pupils receive outstanding teaching and learning opportunities.

This thesis has developed a model to understand how to theorise STs' experiences as identity development based on the findings of this study through combining Wenger's (1997) social theory of learning model, Day and Kington's (2008) teacher identity model and Valsiner's (1998) basic concepts of ZFM and ZPA to offer an integrated theoretical framework to develop an understanding of STs' personal, professional and situated experiences in terms of theorising it as identity development (Figure). Together, these model offer an original contribution to the existing knowledge base with there being little evidence of previous studies in the context of science teacher education which innovatively extend and integrate all three models to theorise STs' personal, professional and situated experiences as identity development to better understand STs' journeys into becoming a science teacher. The model highlights the importance of professional relationships, professional dialogue and reflection on personal, professional and situated experiences and how the ZFM and ZPA provided in the training contexts of HEI, DRB and school learning communities is key to shaping STs' training experiences and subject identity development as science teachers.

### **6.3 Study limitations**

There were a number of issues encountered in relation to the study's research design which created some difficulties during the research process. For instance, not all case trainees had completed questionnaires. Furthermore, as I was the sole researcher in the study, it was possible that my presence in interviews may have influenced STs' responses in terms of them voicing what they thought I wanted to hear. Body language and hesitation some STs' depicted suggested that they feared what they said may affect their training assessment marks even though they were ensured confidentiality and anonymity. This somewhat came through in Stacey's (GTPs) case studies whose interviews were conducted in their school staffroom's as there was no other room available at the time to conduct interviews. They both appeared a little uncomfortable with having other members of staff present. It was evident in their body language that this may have deterred them from providing the actual responses they wanted to give. Finally, the study fully acknowledges that the three case studies in this study may not be representative of the whole ST population and hence can be considered biased to some extent. Furthermore, the study could only offer some tentative conclusions about STs' unique personal, professional and situated experiences and how these shaped their identities as science teachers due to the small scale nature of the study which generated data sets unique to each STs' training journey.

The present study did also have some other limitations and these are considered next. Firstly, as mentioned above, the sample size of participants was small which restricted the researcher from making generalisations (to the wider ST population) using the data that was generated in the present

study. Furthermore, the study findings only reflected participants' personal perspectives about their experiences. In addition, the small amount of quantitative data collected through questionnaires may pose problems because responses (e.g. expression of feelings) would be entirely based on perceptions held by individuals. Moreover, the PGCE's were selected from only one HEI and the GTP's were also recruited from the same DRB which also limited the external generalizability of research the findings. However, this is a common criticism made about case study research designs with regards to the lack of generalizability it offers because of the difficulty to distinguish whether individuals are representative across a whole population (Punch, 2005). With this in mind, the researcher readily acknowledged that this study may lack external validity (generalizability) because findings would be unique to the specific trainees in this study. Hence, it would be difficult to generalise these experiences/expectations to other trainees' nationally in the UK context. Please note that discussions around triangulation which tackle this issue of generalizability are presented in Section 3.7.2 (p. 59). Furthermore, considerations relating to validity and reliability have been explored further in Section 3.7.1 (p. 58).

#### **6.4 Recommendations for further research**

I have summarised four areas of research which findings of this study indicate may benefit from further research:

- (1) Further exploration of the influence relationships between teacher educators and STs' can have on shaping STs' identities as science teachers is needed. The present study revealed how this aspect was central to the ST experience. Therefore, it would be wise to dedicate a longitudinal study exploring this phenomenon in depth. After all, the majority of STs' time is spent with HEI/DRB teacher educators and school mentors. Hence, professional working relationships established with these parties can be central to the ST experience and subsequent teacher identity development. Some studies have explored this but not specifically in the context of science teacher education. For instance, Pittard's (2003) study has generically shown how STs' identity development can be inhibited and repressed by their teacher educators. Conversely, Liu and Fisher (2006) claim that STs' interactions with their teacher educators can improve their confidence, agency and provide them with an overall sense of power.
- (2) The findings of this study reveal that teacher identity development is influenced by multiple contextual factors unique to each STs' training contexts. Findings in this study resonate with

Izadinia's (2013) recommendation which advocates that other ITT providers need conduct research within their own unique contexts regarding student teacher identity. For instance, drawing on situative/social perspectives could assist in gaining a deeper understanding of STs' learning as an 'increasing participation in socially organised practices that develop their professional identities' (Goos, 2005 p. 49). This would in turn generate more local knowledge which could subsequently be compared with findings from other ITT contexts in England.

- (3) Teacher education providers and schools aim to attract outstanding teachers to the profession, while not always ensuring their integration into the school setting in a way that is beneficial to STs' identity development (Beauchamp and Thomas). The findings of this study support this as was reflected in the difficulties and frustrations (praxis shock) some STs' experienced once in their school placements where they were required to reconstruct their identities to adjust to their school settings with little support. Therefore, further research is needed to explore way STs' transition into schools can be better supported and to ensure they are able to establish positive relationships with mentors and colleagues within the professional workplace.
- (4) School mentors can sometimes fail to provide emotional support STs' require. The findings of this study highlight the pertinent role NQTs can play in providing STs' with this emotional support. Therefore, future studies could explore diverse ways NQTs could be utilised to facilitate STs' initial transition into the school environment and in developing their teacher identities throughout their ITT year. Previous studies also highlight the need for greater support in STs' transition from their HEI/DRB to the complex and daunting contexts of school settings (e.g. Johnson, 2004; McClure, 2005).
- (5) Study findings also reveal other theoretical implications relating to boundary crossing and boundary zone theory in the context of secondary science teacher education. Boundary crossing signifies how professionals are sometimes required to 'enter onto territory in which we are unfamiliar and, to some significant extent therefore unqualified' (Suchman, 1994, p. 25). It can therefore present challenges to STs' individuals face when 'negotiating and combining ingredients from different contexts to achieve hybrid situations' (Engestrom et al., 1995 p. 319). Hence, it could prove fruitful to gain in-depth insights into STs' transition from HEI/DRB to school training contexts can provide rich spaces for the identity development. For instance, PGCE data in the present study highlights how boundary crossing and boundary zones between the semi-protected environment of STs' HEI to their initial school placements

had created tensions and a sense of ‘praxis shock’ for some STs’. They were subsequently required to adjust their identities from being a non-teacher, university student to that of a professional ST (a rocky road experience) to meet the demands presented in the school environment. This suggests that the boundary zone between HEI and schools can be considered to be rich learning spaces where teacher identity is developed the most.

## References

- Agee, J.M. (2004) Negotiating a teacher identity: An African-American teacher's struggle to teach in test-driven contexts, *Teachers College Record*, 106(4), pp. 747-774.
- Akyeampong, K. and Stephens, D. (2002) Exploring the backgrounds and shaping of beginning student teachers in Ghana: Towards greater contextualisation of teacher education, *International Journal of Educational Development*, 22, pp. 261-274.
- Anderson, G.J. and Arsenault, N. (1998) *Fundamentals of educational research* RoutledgeFalmer. Available at:  
[http://books.google.co.uk/books?id=gyxqxwJ10n4C&pg=PA12&lpg=PA12&dq=pilot+study+in+educational+research&source=bl&ots=SSLMMZCthZ&sig=IJFGbO1P5M6cFvklZviQT0\\_FuLQ&hl=en&sa=X&ei=9uK4T8jHE4SQ8QPuva2lCg&sqi=2&ved=0CIYBEOgBMAQ#v=onepage&q=pilot%20study%20in%20educational%20research&f=false](http://books.google.co.uk/books?id=gyxqxwJ10n4C&pg=PA12&lpg=PA12&dq=pilot+study+in+educational+research&source=bl&ots=SSLMMZCthZ&sig=IJFGbO1P5M6cFvklZviQT0_FuLQ&hl=en&sa=X&ei=9uK4T8jHE4SQ8QPuva2lCg&sqi=2&ved=0CIYBEOgBMAQ#v=onepage&q=pilot%20study%20in%20educational%20research&f=false) (Accessed: 20/05/2012).
- Andersson, P. and Hellberg, K. (2009) Trajectories in teacher education: Recognising prior learning in practice, *Asia-Pacific Journal of Teacher Education*, 37(3), pp. 271-282.
- Antonek, J.L. (1997) The student teacher portfolio as autobiography: Developing a professional identity, *Modern Language Journal* 81, pp. 15-27.
- Assaf, L.C. (2005) Exploring identities in a reading specialization programme, *Journal of Literacy Research*, 37(2), pp. 201-236.
- Badley, G. (2003) The Crisis in Educational Research: a pragmatic approach, *European Educational Research Journal*, 2(2), pp. 296-308.
- Bailey, K.M., Bergthold, B. and al, e. (1996) *The language learners' autobiography: examining the apprenticeship of observation*. D. Freeman and J. C. Richards. Cambridge, Cambridge University Press.
- Bakhtin, M. (1981) *The dialogic imagination*. Austin, TX, University of Texas Press.
- Ball, S.J. (1972) *Self and identity in the context of deviance: The case of criminal abortion*. In R. Scott and J. Douglas (eds), *Theoretical perspectives on deviance* New York: Basic Books.
- Barber, M. and Mourshed, M. (2007) *How the world's best-performing schools come out on top*. Available at:  
[http://mckinseysociety.com/downloads/reports/Education/Worlds\\_School\\_Systems\\_Final.pdf](http://mckinseysociety.com/downloads/reports/Education/Worlds_School_Systems_Final.pdf) (Accessed: 09/03/2015).
- Bazeley, P. (2007) *Qualitative Data Analysis with NVivo*. Sage Publications.
- Beauchamp, C. and Thomas, L. (2009) Understanding teacher identity: an overview of issues in the literature and implications for teacher education, *Cambridge Journal of Education*, 39(2), pp. 175-189.
- Beijaard, D., Meijer, P.C. and Verloop, N. (2004) Reconsidering research on teachers' professional identity, *Teaching and Teacher Education*, 20(2), pp. 107-128.

- Beijaard, D., Verloop, N. and Vermunt, J.D. (2000) Teachers' perceptions of professional identity: an exploratory study from a personal knowledge perspective, *Teaching and Teacher Education*, 16, pp. 749-764.
- Bennison, A. and Goos, M. (2013) Exploring Numeracy Teacher Identity: An Adaptation of Valsiner's Zone Theory, *Joint AARE Conference*. Adelaide. pp. 1-10.
- Benwell, B. and Stokoe, E. (2006) *Discourse and Identity* Edinburgh University Press.
- Blanton, M., Westbrook, S. and Carter, G. (2001) Using Valsiner's theory to interpret teaching practices in mathematics and science classrooms: Beyond the zone of proximal development, *Paper presented at the annual meeting of the American Educational Research Association*. Seattle, WA.
- Borg, M. (2004) The apprenticeship of observation, *ELT Journal*, 58(3), pp. 274-276.
- Brannen, J. (2005) Mixing methods: The entry of qualitative and quantitative approaches into the research process, *The International Journal of Social Research Methodology, Special Issue*, 8(3), pp. 173-185.
- Britzman, D. (2003) *Practice makes practice: a critical study of learning to teach*. Revised Edition edn. Albany, NY: State University of New York Press.
- Brookes, W. (2005) 'The Graduate Teacher Programme in England; Mentor Training Quality Assurance and the Finding of Inspection.', *Journal of In-Service Education*, 31(1), pp. 43-61.
- Brown, R. (2000) Social identity theory: past achievements, current problems and future challenges, *European Journal of Social Psychology*, 30(6), pp. 745-778.
- Bryman, A. (2012) *Social research methods*. 4th edn. Oxford University Press.
- Bryman, A.S. (2008) *Social Research Methods*. Oxford University Press.
- Bullough, R.V. (1992) Beginning teacher curriculum decision making: personal teaching metaphors, and teacher education, *Teaching and Teacher Education*, 8(3), pp. 239-252.
- Bullough, R.V. (1997) *Practicing theory and theorizing practice*. London: Falmer Press.
- Burton, D. and Bartlett, S. (2009) *Key Issues for Education Researchers*. Sage Publications.
- Campbell, D.T. and Fiske, D.W. (1959) Convergent and discriminant validation by the multitrait-multimethod matrix, *Psychological Bulletin*, pp. 81-105.
- Capel, S.A. (2001) Secondary students development as teachers over the course of a PGCE year, *Educational Research*, 43(3), pp. 247-261.
- Carter, K. and Doyle, W. (1996) *Personal narrative and life history in learning to teach*. In J. Sikula (Ed.), *Handbook of research on teacher education* 2nd edn. New York: Macmillan.
- Cattley, G. (2007) Emergence of professional identity for the pre-service teacher, *International Education Journal*, 8(2), pp. 337-347.
- Chitpin, S. and Simon, M. (2009) Even if no-one looked at it, it was important for my own development: pre-service teacher perceptions of professional portfolios, *Australian Journal of Teacher Education*, 53(3), pp. 227-293.
- Clandinin, D.J. and Connelly, F.M. (1987) Teachers' personal knowledge: What counts as personal in studies of the personal, *Journal of Curriculum Studies*, 19(6), pp. 487-500.

- Clandinin, D.J. and Humber, M. (2005) *Shifting stories to live by: interweaving the personal and the professional in teachers' lives*. In D. Beijaard, P. Meijer, G. Morine-Dershimer & H. Tillema (eds.) *Teacher professional development in changing conditions*. Dordrecht: Springer.
- Clark, C.M. (1992) *Teachers as designers in self-directed professional development*. In A. Hargreaves & M.G. Fullan (Eds.), *Understanding teacher development* New York: Teachers College Press.
- Clark, J. (2012) Using diamond ranking as visual cues to engage young people in the research process, *Qualitative Research Journal*, 12(2), pp. 222-237.
- Cohen, L. and Manion, L. (1994) *Research methods in education*. 4th edn. London: Routledge.
- Cohen, L., Manion, L. and Morrison, K. (2007) *Research Methods in Education*.
- Cohen, L., Manion, L. and Morrison, K. (2011) *Research Methods in Education* 7th edn. London: Routledge.
- Coldron, J. and Smith, H.R. (1999) Active location in teachers' construction of their professional identities, *Journal of Curriculum Studies*, 31(6), pp. 711-726.
- Connelly, F.M. and Clandinin, D.J. (1999) *Shaping a professional identity - Stories of Education practice*. London, ON: Althouse Press.
- Cook, J.S. (2009) Coming into my own as a teacher: identity, disequilibrium and the first year of teaching, *New Educator*, 5, pp. 274-292.
- Cote, J.E. and Levine, C. (2002) *Identity Formation, Agency, and Culture*. 22, New Jersey: Lawrence Erlbaum Associate.
- Cresswell, J.W. and Plano Clark, V.L. (2007) *Designing and Conducting Mixed Methods Research*. Sage Publications.
- Cresswell, J.W., Plano Clark, V.L., Gutmann, M. and Hanson, W. (2003) *Advanced mixed methods research designs*. Sage Publications.
- Cupchik, G. (2001) Constructivist Realism: An Ontology That Encompasses Positivist and Constructivist Approaches to the Social Sciences, *Forum: Qualitative Social Research*, 2(1), p. 1.
- Daly, N. (2009) Not empty vessels: New Zealand pre-service additional language teacher identity, *Waikato Journal of Education*, 14, pp. 5-13.
- Data Protection Act (1998). Available at: <http://www.legislation.gov.uk/ukpga/1998/29/contents> (Accessed: 19/08/2011).
- Day, C., Kington, A., Stobart, G. and Sammons, P. (2006) The personal and professional selves of teachers: stable and unstable identities, *British Educational Research Journal*, 32(4), pp. 601-616.
- Denscombe, M. (2007) *The Good Research Guide for small-scale social research projects*. Berkshire: Open University Press.
- Department for Children, S.a.F. (2002b) *Qualifying to teach: Professional standards for qualified teacher status and requirements for initial teacher training*. London: Teacher Training Agency.



- Department for Education (2010) *The Importance of Teaching: The Schools White Paper 2010*. Available at: <http://publications.education.gov.uk/eOrderingDownload/CM-7980.pdf> (Accessed: 27/11/2010).
- Department for Education (2014) *A world-class teaching profession: Government consultation*. Available at: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/383987/DfE\\_consultation\\_document\\_template\\_for\\_World\\_Class\\_Teachers\\_Consultation\\_voo3BR.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/383987/DfE_consultation_document_template_for_World_Class_Teachers_Consultation_voo3BR.pdf) (Accessed: 09/03/2015).
- Department for Education and Employment (DfEE) (1996) *Graduate Teacher Programme: Consultation Paper*. London: DfEE
- Department for Education and Employment (DfEE) (1998) *Teachers: Meeting the Challenge of Change (Green Paper)* London: DfEE.
- Dewey, J. (1938) *Experience and Education*. New York: Macmillan.
- Dyer, C. (1995) *Beginning Research in Psychology*. Oxford: Blackwell.
- Engestrom, Y., Engestrom, R. and Karkkainen, M. (1995) Polycontextuality and boundary crossing in expert cognition: Learning and problem solving in complex work activities, *Learning and Instruction*, 5, pp. 319-336.
- Ensor, P. (2001) From pre-service mathematics teacher education to beginning teaching: A study of recontextualising, *Journal for Research in Mathematics Education*, 32, pp. 296-320.
- Eraut, M. (2008) Using research into how professionals learn at work for enhancing placement learning, *WACE Asia Pacific Conference*.
- Estola, E. (2003) Hope as work-student teachers constructing their narrative identities, *Scandinavia Journal of Educational Research*, 47(2), pp. 181-203.
- Fani, T. and Ghaemi, F. (2011) Implications of Vygotsky's Zone of Proximal Development (ZPD) in Teacher Education: ZPTD and Self-scaffolding, *Procedia - Social and Behavioural Sciences*, 29, pp. 1549-1554.
- Farnsworth, V. (2010) Conceptualizing identity, learning and social justice in community-based learning, *Teaching and Teacher Education*, 26, pp. 1481-1489.
- Feilzer, M.Y. (2010) Doing Mixed Methods Research Pragmatically: Implications for the Rediscovery of Pragmatism as a Research Paradigm, *Journal of Mixed Methods Research*, 4(1), pp. 6-16.
- Feiman-Nemser, S. and Floden, R. (1986) *The cultures of teaching*. In M. Wittrock (Ed.), *Handbook of Research on Teaching*. 3rd edn. New York: Macmillan.
- Ferguson-Patrick, K. (2011) Professional development of early career teachers: A pedagogical focus on cooperative learning, *Issues in Educational Research*, 21(2) [Online]. Available at: <http://www.iier.org.au/iier21/ferguson-patrick.pdf> (Accessed: 29/09/2013).
- Findlay, K. (2006) Context and learning factors in the development of teacher identity: a case study of newly qualified teachers during their induction year, *Journal of In-Service Education*, 32(4), pp. 511-532.
- Fitzgerald, T.K. (1993) *Metaphors of identity*. Albany, NY: State University of New York Press.

- Flores, M.A. and Day, C. (2006) Contexts which shape and reshape new teachers' identities: A multi-perspective study, *Teaching and Teacher Education*, 22(2), pp. 219-232.
- Foster, R. (2000) The Graduate Teacher Programme: Just the Job?, *Journal of In-Service Education* 26(2), pp. 297-309.
- Foster, R. (2001) The graduate teacher route to QTS—motorway, by-way or by-pass?, *Paper presented at the Annual Conference of the British Educational Research Association*. University of Leeds, 13–15 September.
- Franzak, J.K. (2002) Developing a teacher identity: the impact of Critical Friends Practice on the student teacher, *English Education*, 34(4), pp. 258-280.
- Freese, A. (2006) Reframing one's teaching: Discovering our teacher selves through reflection and inquiry, *Teaching and Teacher Education*, 22, pp. 110-119.
- Furlong, J., Barton, L., Miles, S., Whiting, C. and Whitty, G.T. (2000) *Teacher Education in Transition, Reforming Professionalism?* Open University Press: Buckingham.
- Gee, J.P. (2001) Identity as an analytic lens for research in education. In W.G. Secada (ed.), *Review of research in education*, 25.
- Geertz, C. (1973) *The interpretation of culture*. New York: Basic Books.
- Geertz, C. (1973b) *Thick description: towards an interpretive theory of culture* In. C. Geertz (ed.) *The Interpretation of Cultures*. New York: Basic Books.
- Geijsel, F. and Meijers, F. (2005) Identity learning: the core process of educational change, *Educ. Stud.*, 31(4), pp. 419-430.
- Gill, T. (2000) *The hermeneutical anthropology of Charles Taylor. Creating Identity*. H. Haring and D.Mieth. London SCM Press.
- Goffman (1963) *Notes on the Management of Spoiled Identity*. Simon and Schuster Inc; New York.
- Golafshani, N. (2003) Understanding reliability and validity in qualitative research, *The Qualitative Report*, 8(4), pp. 597-607.
- Goos, M. (2005) A sociocultural analysis of the development of pre-service and beginning teachers' pedagogical identities as users of technology, *Journal of Mathematics Teacher Education*, 8(1), pp. 35-59.
- Gorard, G. (2004) *Combining methods in educational and social research*. Berkshire: Open University Press.
- Graham, J. (1997) *Initial Teacher Education: TTA/OfSTED Quality Framework, UCET Occasional Paper 9*. London: UCET.
- Hanson, W.E., Cresswell, J.W., Plano Clark, V.L., Petska, K.P. and Cresswell, J.D. (2005) Mixed methods research designs in counselling psychology, *Journal of Counselling Psychology*, 52(2), pp. 224-235.
- Hargreaves, A. (2001) Emotional geographies of teaching, *Teachers College Record*, 103(6), pp. 1056-1080.

- Harrison, R. and al, e. (2005) *Supporting Lifelong Learning: Perspectives on learning*. London: Routledge.
- Hartas, D. (2010) *Educational research and inquiry: qualitative and quantitative approaches*. London ; New York : Continuum.
- Hayes, N. (2001) *Doing Psychological Research*. Philadelphia: Open University Press.
- Herriott, R.E. and Firestone, W.A. (1983) Multi-site qualitative policy research: Optimizing description and generalizability, *Educational Researcher*, 12, pp. 14-19.
- Hoban, G. (2007) *Considerations for designing coherent teacher education programs*. In J. Butcher & L. McDonald (Eds.), *Making a difference: Challenges for teachers, teaching and teacher education* Rotterdam: Sense Publishers.
- Hobson, A., Malderez, A., Tracey, L. and Kerr, K. (2005) Teachers' experiences of initial teacher preparation, induction and early professional development in England - does route matter?, *Journal of Education for Teaching: International Research and Pedagogy*, 31(2), pp. 133-135.
- Hobson, A.J., A. Malderez, L. Tracey, M.S. Giannakaki, K. Kerr, R.G. Pell, G.N. Chambers, P.D. Tomlinson and Roper, T. (2006) *Becoming a teacher: Student teachers' experiences of initial teacher training in England*. Nottingham. [Online]. Available at: <http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eOrderingDownload/RR744.pdf> (Accessed: 29/08/2013).
- Hoffman-Kipp, P. (2008) Actualizing democracy: the praxis of teacher identity construction, *Teacher Education Quarterly*, 35(3), pp. 151-164.
- Hussain, M.A., Monaghan, J. and Threlfall, J. (2011) *Proceedings of the British Society for Research into Learning Mathematics*. University of Leeds.
- Izadinia, M. (2012) A review of research on student teachers' professional identity, *British Educational Research Journal*, pp. 1-20.
- James-Wilson, S. (2001) The influence of ethno-cultural identity on emotions and teaching, *Paper presented at the Annual Meeting of the American Educational Research Association*. New Orleans.
- Jennifer, C.G. and Greene, J.C. (2007) *Mixed methods in social inquiry*. San Francisco, CA: San Francisco, CA : Jossey-Bass.
- Johnson, D.D. and Pearson, P.D. (1984) *Teaching reading vocabulary*. Second Edition edn. New York: Holt, Rinehart & Winston.
- Johnson, R.B. and Onwuegbuzie, A.J. (2004) Mixed methods research: a research paradigm whose time has come, *Educational Researcher*, 33(7), pp. 14-26.
- Joseph, D. and Heading, M. (2010) Putting Theory into Practice: Moving from Student Identity to Teacher Identity, *Australian Journal of Teacher Education*, 35(3).
- Kerby, A. (1991) *Narrative and the self* Indiana University Press, Bloomington, IN.
- Knowles, J.G. (1992) *Models for understanding pre-service and beginning teacher' biographies*. In I. F. Goodson (Ed.), *Studying teachers' lives*. London: Routledge.
- Kompf, M., Bond, W.R., Dworet, D. and Boak, R.T. (1996) *Changing research and practice: Teachers' professionalism, identities and knowledge*. London, Washington, DC: Falmer.

- Korthagen, F.A.J., Kessels, J., Koster, B., Lagerwerf, B. and Wubbels, T. (2001) *Linking practice and theory: The pedagogy of realistic teacher education* Mahwah, NJ: Lawrence Erlbaum.
- Kvale, S. (1996) *Interviews: An introduction to Qualitative Research Interviewing*. Thousand Oaks: CA: Sage.
- Larson, M.L. and Phillips, D.K. (2005) Becoming a teacher of literacy: the struggle between authoritative discourses, *Teaching Education*, 16(4), pp. 311-323.
- Lave, J. and Wenger, E. (1991) *Situated learning: legitimate peripheral participation*. Cambridge: Cambridge University Press.
- Lawlor, S. (1990) *Teachers mis-taught: Training theories or education in subjects?* London Centre for Policy Studies.
- Lemeke, J.L. (2008) *Identity, development and desire: Critical questions*. In C. Caldas-Coulthard & R. Iedema (Eds.), *Identity trouble: Critical discourse and contestations of identification* London: Macmillan Palgrave.
- Lerman, S. (2001) *A review of research perspective on mathematics teacher education*. In F. Lin & T. J. Cooner (Eds.), *Making sense of mathematics teacher education*. Dordrecht: Kluwer.
- Lin, H., Gorrell, J. and Porter, K. (1999) The road to pre-service teachers' conceptual change, paper presented at the Mid-South Educational Research Association, Point Clear, AL, 17-19 November (ERIC Document Reproduction Service No. ED 436508).
- Lincoln, Y.S. and Guba, E.G. (1985) *Naturalistic Inquiry*. Beverley Hills, CA: Sage.
- Lincoln, Y.S. and Guba, E.G. (2000) *Paradigmatic controversies, contradictions, and emerging confluences*. In Norman K. Denzin & Yvonna S. Lincoln (Eds.), *The handbook of qualitative research* 2nd edition edn. London: Sage.
- Liu, Y. and Fisher, L. (2006) The development patterns of modern foreign language student teachers' conceptions of self and their explanations about change: three cases, *Teacher Development*, 10(3), pp. 343-360.
- Loughran, J., Mitchell, I., Neale, R. and Toussaint, J. (2001) PEEL and the beginning teacher, *Australian Educational Researcher*, 28(2), pp. 29-52.
- Luehmann, A.L. (2007) Identity development as a lens to science teacher preparation, *Science Education* 91(5), pp. 822-839.
- Maclean, R. and White, S. (2007) Video reflection and the formation of teacher identity in a team of pre-service and experienced teachers, *Reflective Practice*, 8, pp. 47-60.
- MacLure, M. (1993) Arguing for your self: identity as an organising principle in teachers' jobs and lives, *British Educational Research Journal*, 19(4), pp. 311-22.
- Malderez, A. and Bodoczky, C. (1999) *Mentor courses: A resource book for trainer-trainers*. Cambridge: Cambridge University Press.
- Malderez, A., Hobson, A.J., Tracey, L. and Kerr, K. (2007) Becoming a student teacher: core features of the experience, *European Journal of Teacher Education*, 30(3), pp. 225 - 248.
- Marshall, C. and Rossman, G. (1995) *Designing Qualitative Research*. Second Edition edn. London: Sage Publications.

- Mead, N. (2007) How effectively does the Graduate Teacher Programme contribute to the development of trainee teachers' professional values?, *Journal of Education for Teaching*, 33(3), pp. 309-321.
- Moses, J. (2009) *The grass is greener: a comparison of two distinct pathways to Qualified Teacher Status with particular reference to the expectations and experiences of secondary physical education trainees*. Doctorate of Education thesis. Durham University.
- Muijs, D. (2004) *Doing Quantitative Research in Education with SPSS*. London: Sage.
- Mutton, T., Burn, K. and Hagger, H. (2010) Making sense of learning to teach: Learners in context.
- Nye, P. (2014) *FEATURED: The initial teacher training landscape in England*. Available at: <http://schoolsweek.co.uk/featured-the-initial-teacher-training-landscape-in-england/> (Accessed: 09/03/2015).
- Ofsted (2002) *The Graduate Teacher Programme, HMI 346*. London, Office for Standards in Education.
- Ofsted (2007) An employment-based route into teaching 2003-06, January 2007. 19/08/2011. Available at: <http://www.ofsted.gov.uk/resources/employment-based-route-teaching-2003-06>.
- Olitsky, S. (2007a) Facilitating identity formation, group membership, and learning in science classrooms: what can be learned from out-of field teaching in an urban school?, *Science Education*, 91(2), pp. 201-221.
- Olitsky, S. (2007b) Promoting student engagement in science: interaction rituals and the pursuit of a community of practice, *Journal of Research in Science Teaching*, 44(1), pp. 33-56.
- Olsen, B. (2008) Reasons for entry into the profession illuminate teacher identity development, *Teacher Education Quarterly*, 35(3), pp. 23-40.
- Peressini, D., Borko, H., Romagnano, L., Knuth, E. and Willis, C. (2004) A conceptual framework for learning to teach secondary mathematics: A situative perspective., *Educational Studies in Mathematics*, 56, pp. 67-96.
- Pittard, M.M. (2003) Developing identity: the transformation from student to teacher, *Paper presented at the Annual Meeting of the American Educational Research Association*. Chicago, IL, 21-25 April.
- Poulou, M. (2007) Student-teacher' concerns about teaching practice, *European Journal of Teacher Education*, 30, pp. 91-110.
- Punch, K. (2005) *Introduction to Social Research: Quantitative and Qualitative Approaches*, Second Edition edn. Sage Publications Ltd
- Riopel, M.-C. (2006) *Apprendre à enseigner: Une identité professionnelle à développer*. Québec. Les Presses de l' Université Laval.
- Robson, C. (1993) *Real-world research: A resource for social scientists and practitioner researchers*. Malden: Blackwell Publishing.
- Robson, C. (2002) *Real World Research: A Resource for Social Scientists and Practitioner-Researchers*. London: Blackwell.

- Rodgers, C. and Scott, K. (2008) *The development of the personal self and professional identity in learning to teach*. In M. Cochran-Smith, S. Feiman-Nemser, D.J. McIntyre & K.E. Demers (Eds.), *Handbook of research on teacher education: Enduring questions and changing contexts*. New York: Routledge.
- Sachs, J. (2005) *Teacher education and the development of professional identity: Learning to be a teacher*. In P. Denicolo & M. Kompf (Eds.), *Connecting policy and practice: Challenges for teaching and learning in schools and universities* Oxford: Routledge.
- Saka, Y., Southerland, A., Kittleson, J. and Hutner, T. (2013) Understanding the Induction of a Science Teacher: The interaction of Identity and Context, *Research in Science Education*, 3(43), pp. 1221-1244.
- Saka, Y., Southerland, S.A., Kittleson, J. and Hutner, T. (2012) Understanding the Induction of a Science Teacher: The Interaction of Identity and Context, *Research in Science Education*, 43(3), pp. 1221-1244.
- Samuel, M. and Stevens, D. (2000) Critical dialogues with self: developing teacher identities and roles-a case study of South African students, *International Journal of Educational Research*, 33, pp. 474-491.
- Sardo-Brown, D. (1996) A longitudinal study of novice secondary teachers' planning: Year two, *Teacher and Teacher Education*, 12(5), pp. 519-530.
- Schwartz, S.J. (2001) The evolution of Eriksonian and neo-Eriksonian identity theory and research: A review and integration. *Identity: An International Journal of Theory and Research*, 1, pp. 7-58.
- Searching for the essence of good teaching (2001). University of Utrecht: IVLOS.
- Seidl, B.L. and Conley, M.D. (2009) (Re) writing new possibilities for teaching lives: prospective teachers and multicultural apprenticeships, *Language Arts*, 87(2), pp. 117-126.
- Sfard, A. and Prusak, A. (2005) Telling identities: In Search of an Analytic Tool for Investigating Learning as a Culturally Shaped Activity, *Education Researcher*, 34(4), pp. 14-22.
- Silverman, D. (2000) *Doing Qualitative Research - A Practical Handbook*. London: Sage Publications.
- Slegers, P. and Kelchtermans, G. (1999) Inleiding op het themanummer: professionele identiteit van leraren [Professional identity of teachers], *Pedagogisch Tijdschrift*, 24, pp. 369-74.
- Smagorinsky, P., Cook, L.S., Moore, C., Jackson, A.Y. and Fry, P.G. (2004) Tensions in Learning to Teach: Accommodation and the Development of a Teaching Identity, *Journal of Teacher Education*, 55(1), pp. 8-24.
- Smith, K. and McLay, M. (2007) Curates' eggs? Secondary trainee teachers' experience of the Graduate Teacher Programme and the Postgraduate Certificate in Education, *Journal of Education for Teaching*, 33(1), pp. 35-54.
- Stake, R.E. (2005) *Qualitative Case Studies in N. K. Denzin. and Y. S. Lincoln (eds) The Sage handbook of Qualitative Research*. 3rd edn. London: Sage.
- Stenbacka, C. (2001) Qualitative research requires quality concepts of its own, *Management Decision*, 39(7), pp. 551-5.

- Suchman, J. (1994) Working relations of technology production and use, *Computer Supported Cooperative Work*, 2, pp. 21-39.
- Sutherland, L., Howard, S. and Markauskaite, L. (2010) Professional identity creation: examining the development of beginning pre-service teachers' understanding of their work as teachers, *Teaching and Teacher Education*, 26(455-465).
- Sutherland, S. (1996) *Teacher Education and Training: A Study, Report 10 of the National Committee of Inquiry into Higher Education (The Dearing Report)*. London: HMSO.
- Tajfel, H. and Turner, J.C. (1986) *The social identity theory of intergroup behaviour*. In S. Worchel & W.G. Austin (Eds.), *Psychology of Intergroup Relations*. Chicago, IL: Nelson-Hall.
- Tashakkori, A. and Teddlie, C. (2003a) *Handbook of mixed methods in social & behavioural research*. Thousand Oaks, CA: Sage.
- Teddlie, C. and Tashakkori, A. (2009) *Foundations of mixed methods research*. Thousand Oaks: CA: SAGE.
- The British Psychological Society (2010) *Code of Human Research Ethics*. Available at: [http://www.psy.ed.ac.uk/psy\\_research/documents/BPS%20Code%20of%20Human%20Research%20Ethics.pdf](http://www.psy.ed.ac.uk/psy_research/documents/BPS%20Code%20of%20Human%20Research%20Ethics.pdf) (Accessed: 16/09/2013).
- Trent, J. (2010) Teacher education as identity construction: insights from action research, *Journal of Education for Teaching*, 36(2), pp. 53-168.
- Valsiner, J. (1997) *Culture and the development of children's action: A theory of human development*. 2nd edn. New York: John Wiley & Sons.
- Varus, M. (2009) Sexuality, schooling and teacher identity formation: a critical pedagogy for teacher education, *Teaching and Teacher Education*, 25, pp. 383-390.
- Vygotsky, L.S. (1978) *Mind in society: the development of higher order processes*. Cambridge, MA, Harvard University Press.
- Walkington, J. (2005) Becoming a teacher: encouraging development of teacher identity identity through reflective practice, *Asia-Pacific Journal of Teacher Education*, 33(1), pp. 53-64.
- Walliman, N. (2006) *Social Research Methods*. Sage Publications.
- Warford, M.K. (2011) The zone of proximal teacher development, *Teaching and Teacher Education*, 27(2), pp. 252-258.
- Webb, M. (2005) Becoming a secondary-school teacher: the challenges of making teacher identity formation a conscious, informed process, *Issues in Educational Research*, 5(2), pp. 206-224.
- Weber, S. and Mitchell, C. (1996) Drawing ourselves into teaching: studying the images that shape and distort teacher education, *Teaching and Teacher Education*, 12(3), pp. 303-313.
- Wenger, E. (1998) *Communities of practice: learning, meaning and identity* Cambridge University Press.
- Wiersma, W. (2000) *Research methods in education: An introduction*. 7th edn. Boston Allyn and Bacon.

- Wilkin, M. (1996) *Initial teacher Training. The Dialogue of Ideology and Culture* London: Falmer Press.
- Wilson, N. and McLean, S. (1994) *Questionnaire Design: A Practical Introduction*. Newton Abbey, Co Antrim: University of Ulster Press.
- Winograd, K. (2003) The functions of teacher emotions: the good, the bad, and the ugly, *Teachers College Record*, 105(9), pp. 1641-1673.
- Winter, G. (2000) A comparative discussion of the notion of 'validity' in qualitative and quantitative research, *The Qualitative Report*, 4, pp. 3-4.
- Yin, R. (1981) *The Case Study as a Serious Research Strategy*. Beverley Hills: Sage Publications
- Yin, R. (1994) *Case Study Research: Design and Methods*. London: Sage Publications.
- Yin, R.K. (2009) *Case Study Research: Design and Methods*. Fourth Edition edn. California SAGE Publications.
- Yousafzai, M. (2013) *I am Malala: The girl who stood up for education and was shot by the Taliban*. Little Brown and Company.
- Zembylas, M. (2003) Emotions and teacher identity: a post-structural perspective, *Teachers and Teaching: Theory and Practice*, 9(3), pp. 213-38.
- Zembylas, M. (2005) Discursive practices, genealogies, and emotional rules: A poststructuralist view on emotion and identity in teaching, *Teacher and Teacher Education*, 21, pp. 935-948.



## Appendices

### A. Draft interview schedule: - Interview 1

1. Please could you tell me a little bit about your academic background e.g.
  - a. What was the title of your first degree?
  - b. Which university you studies at?
  - c. What classification you gained?
2. So what is your subject specialism in terms of teaching KS5?
3. How relevant is your degree to helping you with your PGCE/GTP?
  - a. Were any of your modules/study on this degree specifically linked into the National Curriculum for Science?
4. Was your course both practical and theoretical in nature?
  - a. Were additional optional modules available for you to choose from and were these practical and/or theoretical in nature?
  - b. In terms of the National Curriculum, did you feel your course provided you with a solid knowledge base?
  - c. Has the knowledge you gained from your first degree helped you in preparing for your teacher training course?
  - d. Did you get the opportunity to go on any work placements during/after your first degree? If yes, please could you give a brief description of what you did?
5. What is your subject knowledge like in the other core subject areas (Physics, Chemistry, Biology).
  - a. Have you taken any additional steps to improve your knowledge of the key sciences (Physics, Chemistry, Biology)?
6. How would you describe your Science background from a personal perspective?
7. Do you have any previous experience working with young people?
8. Did you go from doing your degree straight into starting your teaching qualification?
  - a. If no, how many years did you have out and what did you do in that time?
9. When did you decide to apply for your PGCE/GTP course?
10. Why did you decide to choose your particular route into the teaching profession rather than any other route?
11. Did you consider any other routes?
12. Were you told about any other routes into the teaching profession?

13. Are you happy with the programme structure that has been set up for you?
14. You have been in school for a few months (for GTP's)/(few weeks for PGCE's) now, what have you been doing. For example teaching or observing?
15. Do you have a professional mentor in school?
16. Has he/she been allocated time to do this mentoring/tutoring job?
  - a. Is this a set time on the timetable that will not be taken away from him/her?
  - b. Do you know how many years of teaching experience your tutor has?
  - c. Did he/she do a GTP or PGCE?
  - d. Has your mentor shown you examples of his/her own forms/ assignments/portfolios?
17. When preparing and writing lesson plans, what sort of input do you get from your mentor?
18. Have you both talked about all the teaching standards?
  - a. What is the support like?
19. Will you/have you had support with your assignments?
20. How many GTP's are there in your school?
21. What were your expectations of the course before you started your training?
22. Can you comment on whether these expectations have been met so far?
23. What do you think will be the main challenges for you this year?
  - a. In terms of embarking on your training, what do you think the challenges are going to be?
  - b. Have you got any thoughts on how the year might go?
  - c. What do you hope to get out your training? (aside from a teaching qualification).
24. In your own words, could you provide a brief summary of what your experiences in general have been so far?

## B. Draft interview schedule: - Interview 2

1. Welcome, this is interview two of three. Last time we explored your:-

- Academic background
- expectations for the year
- why you chose your particular training route
- experiences within the first few weeks of beginning the course
- I would like to review your training experiences to date and explore how things are progressing for you now that your half way through the course.
- In your view, could you give a brief overview of how you think your training year has progressed so far?

2. What do you think have been the low points since our last interview?

3. What have been your high points or turning points since our last interview?

4. Can you tell me briefly about the current school you are placed in (e.g. school size/type, science department (e.g. young?) number of staff etc)?

5. How are you finding your second school placement in comparison to your first school placement?

6. Did you have any school induction in your second school placement? If yes, what kind of training did they offer?

7. Is there been any differences in the mentoring support (subject and professional tutor) in the two placements?

8. Have you encountered problems with any classes you have taught?

9. What do you do when you have a challenging and difficult lesson? Do you reflect on it alone or with anybody?

10. In your view, do you think the type of school you are placed in has a huge influence on the experiences you have?

11. What has the level of support been like from your professional tutor, subject trainer and university tutor since our last interview?

12. Do you still have an allocated meeting time where you sit down and discuss things with your professional tutor, subject trainer and DRB/university tutor? What is the structure of your meetings?

13. Does your subject trainer set you targets for the following week?

14. What kind of targets maybe set as an example?

15. Are the lesson observations trying to achieve these targets that are set in your weekly meetings?

16. What sort of feedback are you receiving after teaching your lessons? Do you get written and/or verbal feedback after formal and day to day lessons taught?
17. What sort of support and feedback are you getting in general?
18. Is the feedback helpful/constructive (e.g. are told how to put things right)?
19. Who gives the feedback and is it given immediately?
20. What about other support within the school and within the DRB/University...have you attended any other meetings?
21. Do you feel you have had the support and opportunity to develop your own teaching style and not had to follow your trainer's teaching style?
22. Do you feel you have been criticised for not following your trainers advice at times?
23. Do you feel there was adequate support/provision/training for your subject trainer and other mentors to train you effectively?
24. At any point, have you felt that you required more support and motivation than you were provided with? Have you ever felt that you were thrown in the deep end?
25. Have you ever been praised by the head of department or subject trainer during staff meetings?
26. How often do you see your DRB/ university tutor? How many times does she come and visit you or you go and see them?
27. Is your DRB tutor approachable? Is he/she easy to contact and do they always respond promptly to any queries you may have?
28. How often does the DRB tutor come and observe you teaching a lesson?
29. Have you had any discussions about government initiatives/policy's relating to secondary education and to the context of science whilst on your training course?
30. What is your current case study/assignment based on?
31. Are you focussing on meeting particular QTS standards that are also based on the case study?
32. Has there been more discussion about the QTS standards since our last interview? Have you been given more guidance about how to put together your portfolios of evidence to meet these standards?
33. How is the process of gathering information for evidencing the QTS standards going? Have you collected, filed and cross-referenced any evidence which meets the QTS standards? Could you describe the process for me?
34. Do you wish you had started the process of evidencing the QTS standards much earlier on in your course and have had benefited from this?

35. Who monitors and signs off the evidence you have collected to meet the QTS standards?
36. Is there anything else you would like to add about the QTS standards?
37. Have you taught all three subject specialism's?
38. What topics have you been teaching and how long have you had to teach each one?
39. Have you had equal amount of experiences teaching KS3 and KS4?
40. Have you had an opportunity to teach KS5?
41. Do you feel you are lacking teaching experience in a particular area? If yes, is there anything the school can do to help you build your experience in this area?
42. If yes, do you require more support in this area?
43. Have you had much experience with SEN/EAL?
44. Have you had any opportunities to work with TA's, coaches and do carryout team teaching?
45. Have you had an opportunity to use ICT in your teaching?
46. Have you had access to all science practical equipment that you have needed and have these been demoed to you if you have requested this?
47. How do you feel about your subject knowledge now that your two thirds into your training?
48. Have you had to do a primary school placement yet? (if yes, was it one week?)
49. Which areas do you feel your current school have successfully been actively involved in a lot?
50. How does this compare with your first placement?
51. Is there any areas where your current school could offer greater support in or could tighten up on any process?
52. Have you had any opportunities to go on any external training course(s)?
53. Have you had the opportunity to meet any science NQT's
54. Do you ever feel you are seen as an extra in your department?
55. Have you ever been expected to act in supply/cover roles to cover lessons or left on your own to teach?
56. As a GTP/PGCE, what do you prefer...to be left to your own devices when teaching or to have another member of staff present at all times?

57. In your view, do you feel the preparation given to you by your DRB/University has been adequate?
58. Have you been given the opportunity to reflect back on your placements?
59. How have you found the work load since our last interview?
60. Now your two thirds through your course, do you feel happy with the structure provided by the training route you chose? Or would you have now preferred a PGCE/GTP?
61. In terms of employment, what are your plans once you have gained your QTS? Have you started looking and applying for jobs?
62. Have you been given any advice on applying for future teaching roles/careers and given support with interview practice and writing your CV's?
63. Have you had any preparation time to help you towards the completion of your Career Entry Development Point profile? Do you know who signs you off for that?
64. In your own words, briefly describe your experiences since our last interview.
65. Since the last interview, do you feel your expectations of the course are being met?
66. In your own words, is there anything else you would like to add if I have missed anything?

### **C. Draft interview schedule: - Interview 3**

Interview 1:- explored academic background, reasons for wanting to enter the teaching profession and you expectations for your chosen course

Interview 2:- juicy interview where we explored how you were progressing

Interview 3:- will now provide a reflective account of your experiences throughout your course and how you feel now you have come to the end of your training. I want to tease out some of the key developments, issues and concerns.

1. So you've actually come to the end of your course...huge congratulations. How did your final QTS assessment day go? Could you explain the process?
2. What grade did you get and were you happy with this?
3. How did you know that you were ready for the assessment and that you had all necessary evidence? Did someone check or was it just you?
4. Was the assessor a science specialist?
5. Were there any standards that you didn't meet through lack of opportunity?
6. Were any areas for improvement identified during the assessment process which will be transferred over to your NQT year?
7. Do you feel you have gained a lot from the course and are well equipped and prepared for your NQT year?
8. Do you feel that that the training has lived up to the expectations you had at the start of the course. Are there any which were not met?
9. If you had to identify one high point from your entire whole training, what would they be?
10. If you had to identify one low point from your entire training, what would they be?
11. So if you were given a pen and paper now and asked to design your own support programme, what chances would you make?
12. So do you feel that you may have done better if things had been done differently?
13. At any point of your training, did you ever reach a point where you seriously considered leaving the course?

14. Have you had any preparation time to help you towards the completion of your Career Entry Development Point profile? Do you know who signed you off for that?
15. What are the main points for development on your CEPD so far? Are there any general teaching areas you feel you need to work on?
16. Can you summarise what the mentoring/tutoring support has been like from uni and schools April to June?
17. Were you happy with the way your targets were set?
18. Are there any areas of the Science Curriculum which you didn't cover in KS3-KS5?
19. Do you feel you have now got balanced experiences in teaching KS3-KS5 Physics, Chemistry and Biology?
20. Do you have any regrets about wanting to enter the teaching profession and about doing the PGCE course? If yes, what job would you have liked to have done instead?
21. So would you choose to do the PGCE route again if you could go back?
22. Would you recommend the pathway to others?
23. So you wouldn't complain about the experiences that you have had throughout your training year?
24. Would you do anything different in terms of your preparation and experiences if you could go back prior to beginning the course?
25. Are there any improvements you would like to see in the way training on the PGCE is provided?
26. Have you secured a job for September? When did you get this offered?
27. Can you sum up in your own words how you feel your overall training has gone and are you happy with it?
28. Thank you for all your support with this research and all the best for next year



## D. Half-termly questionnaire

Please indicate.....

(1 = low, 6 = high)

1. Your perceived rate of progress in your teaching this month

1      2      3      4      5      6

2. Your current level of satisfaction with your training pathway

1      2      3      4      5      6

3. The degree to which your expectations for your teacher development are being met

1      2      3      4      5      6

4. The level of support that you have received from your subject mentor

1      2      3      4      5      6

5. The level of support you have received from your professional mentor/university tutors

1      2      3      4      5      6

Can you indicate: -

a. What has gone particularly well this month?

b. What have been the main low points for you this month?

c. Could you please give a brief overview of how you have felt this month.  
(If there have been any significant moments please indicate those below).

## E. Identity questionnaire

1. In terms of your professional identity transition, where do you feel you are now and where do you hope your professional role as a teacher will be in the future (e.g. 1-5 year's time)?
2. Do you feel that the overall mentoring support you received throughout your training helped you develop your professional identity?
3. Prior to starting your GTP training, what kind of teacher had you always dreamt of being?
4. In your own words, please describe what you think makes a good science teacher?
5. When you were of school age, did you have a teacher who inspired you in wanting to pursue a career in teaching?
6. Have you ever referred to your own personal experiences as a learner to help guide you with the way you deliver your own teaching? If yes, do you think these experiences have contributed towards developing your professional identity?
7. When you were of school age, did you like or dislike science as a subject?
8. What do you think your pupils expected from you with regards to the lessons you taught and delivered during your training year?
9. In your school placements, did establishing collegial relationships with other science teachers help you to further develop and improve your knowledge on learning environments, science curriculum and teaching strategies?
10. During your training, did you ever feel anxious about your scientific subject knowledge and/or lacked confidence in your ability? If yes, was there a specific point in your training where you felt this way?
11. Whilst training, did you discover any scientific misconceptions that you had?
12. During your training, did you struggle with any of the following science topics? Please add any additional topics in the empty spaces which you remember struggling with: -

Science topics	Struggle with topic?		
	Yes (Y)	No (N)	Didn't teach it (D)
Light			
Water cycle			
Matter			
Energy			

<b>Multiple topics in chemistry</b>	
<b>Seasons</b>	
<b>Phases of the moon</b>	
<b>Day and night</b>	
<b>Multiple topics in astronomy</b>	
<b>Multiple topics in Biology</b>	

13. The table below displays key aspects of the KS3 and KS4 Science curriculum. Please tick any boxes which most reflect the main way you deliver your lessons.

**N.B. Please refer to the KS3 and KS4 Science Curriculum PDF's I have also emailed to you for further details for each key science area**

<b><u>Key aspects of the KS3 &amp; KS4 Science Curriculum</u></b>	<b>The main ways you teach (indicate with an 'X') &amp; add any comments below</b>
<b>1. Delivery practical &amp; enquiry based lessons</b>	
<b>2. Deliver communication lessons (e.g. through use of ICT, presentations, group presentations etc)</b>	
<b>3. Deliver lessons through providing critical understanding of scientific concepts in general</b>	
<b>4. Deliver lessons through providing critical understanding of scientific data, evidence, theories and explanations</b>	
<b><u>Do you specifically teach in any of the following ways? :-</u></b>	
<b>1. Focus attention on student learning and help them become autonomous learners</b>	
<b>2. Choose activities which actively promote science learning</b>	
<b>3. Choose activities on the basis that they are fun</b>	
<b>4. Choose activities which focus on student behaviour &amp; keeping this under control</b>	

14. Please could you indicate if you received any training on the following key areas during your training year and please feel free to add any comments: -

<b>Key training aspects</b>	<b>Training received at University? Yes (Y) No (N)</b>	<b>Training received in School placements? Yes (Y) No (N)</b>	<b>Any additional comments? (e.g. was the training good enough? Was there a balance)?</b>
<b>Educative curriculum materials</b>			
<b>Online support</b>			
<b>Modelling effective science teaching strategies</b>			
<b>Scientific enquiry skills</b>			
<b>Subject knowledge (curriculum delivery)</b>			
<b>Assessment</b>			
<b>Pedagogic content knowledge</b>			
<b>Modelling enthusiasm for science and science teaching</b>			
<b>Understanding learners</b>			
<b>Appropriate/strong/stable learning environment established for you to work in?</b>			

Huge thanks in advance for taking time out to complete this for me. It will help immensely with the data analysis and writing up of key findings.

Jas

**F. Tick box questionnaire**

		<b>Prior expectations of <u>school experience</u> &amp; whether these were met</b>				
		<b>Was this an expectation prior to you starting the course? ✓ (yes) X (no)</b>	<b>To what extent was the expectation met by the end of the course? Please tick appropriate box</b>			
			<b>Fully met</b>	<b>Partially met</b>	<b>Not met</b>	
L I S T O F G E N E R A L E X P E C T A T I O N S		<b>To gain people management skills</b>				
		<b>To gain practical/hands-on experience</b>				
		<b>To learn from experienced teaching practitioners (e.g. via observations)</b>				
		<b>To have a heavy workload</b>				
		<b>To have good professional support</b>				
		<b>That the course would provide flexible training</b>				
		<b>That the PGCE course would be better than the GTP course</b>				
		<b>That you would be busy</b>				
		<b>That you would have the opportunity to reflect on your practice</b>				
		<b>To gain insights into school politics</b>				
		<b>To be thrown in the deep end</b>				
		<b>To improve subject knowledge</b>				
		<b>To receive adequate professional development</b>				
		<b>To be dealing with poor behaviour</b>				
		<b>To learn classroom/behaviour management skills</b>				
		<b>To be in charge of a module</b>				
		<b>To have access to school/course documentation</b>				
		<b>To receive full support from subject trainer</b>				
	<b>To receive ICT training (e.g. interactive white boards etc)</b>					

		<b>Were these areas good enough or not good enough?</b>		
		<b>GOOD ENOUGH?</b>	<b>NOT GOOD ENOUGH?</b>	<b>ANY COMMENTS?</b>
<b>A R E A S  O F  S C H O O L  E X P E R I E N C E S</b>	<b>Amount of paperwork</b>			
	<b>Atmosphere/school culture</b>			
	<b>Feedback given after lesson observations</b>			
	<b>Guidance on class control</b>			
	<b>Guidance on lesson planning</b>			
	<b>ICT facilities in school</b>			
	<b>Level of flexibility on training course</b>			
	<b>Number of informal and formal lesson observations</b>			
	<b>Partnership between university &amp; school</b>			
	<b>Relevance between university sessions &amp; school</b>			
	<b>School structures (e.g. behaviour management)</b>			
	<b>Sessions by professional mentor</b>			
	<b>Support from subject-trainer</b>			
	<b>Support with lesson planning</b>			
	<b>Support with developing subject knowledge</b>			
	<b>Support with SEN classes</b>			
<b>Time spent with professional mentor</b>				
<b>Time spent with subject-trainer</b>				

## Highlighting areas where university provision needs to be improved

UNIVERSITY PROVISION	Were these areas good enough or not good enough?		
	GOOD ENOUGH?	NOT GOOD ENOUGH?	ANY COMMENTS?
Feedback on assignments submitted			
Focus on assessment for learning methods			
Focus on behaviour & classroom management techniques			
Focus on lesson planning (e.g. sequence/block planning)			
Focus on meeting QTS Standards (e.g. session with exemplar evidence)			
Focus on meeting Science NQT's			
Focus on needs and training analysis			
Focus on professional studies			
Focus on reflecting on school placement experiences			
Focus on subject related sessions			
Focus on workshops/peer-group teaching exercises			
Focus on variety of effective teaching styles			
Information about diagnostic placement & long placement			
Number of assignments			
Number of references of key books given			
Support with carrying out practical's			
Time spent with university tutor			

## G. Example of a transcript

Speaker	Content
Interviewer	Ok, so this is interview one of three...
Respondent	Umhum...
Interviewer	Erm, firstly I just want to know a little bit about your academic background. Could you tell me the name of your first degree please?
Respondent	I did Applied Biology.
Interviewer	Ok, where was that?
Respondent	At N*** University...
Interviewer	N***...
Respondent	Yeah...
Interviewer	And if you don't mind saying, what classification did you erm...
Respondent	I got a 2:2...
Interviewer	Fab, erm so what is your subject specialism in terms of Key Stage 5 teaching?
Respondent	Erm Biology.
Interviewer	Ok, how relevant is your degree to helping you with your PGCE course?
Respondent	Erm, yeah I think it's really relevant, erm especially thinking about Key Stage 5 teaching, erm a lot of the stuff I did at degree level is you know involved in the specification and things.
Interviewer	Ok, do you remember any modules erm specifically that are linked to the National Curriculum for Science?
Respondent	Erm, I did a lot of genetic engineering erm, biochemistry and stuff like that, so respiration, photosynthesis so that kind of stuff.
Interviewer	Was that compulsory or was that optional?
Respondent	Erm, some of it was compulsory, but if you wanted more in-depth then you know you had your optional modules to go more in-depth with it so...
Interviewer	Ok, erm was the course both theory and practical or...
Respondent	Yes yeah...



Interviewer So would you say it was an equal balance?  
 Respondent I would say more practical than theory...

Interviewer Oh right...

Respondent Yeah...

Interviewer Ok, erm were there optional modules available to you?

Respondent Yeah...

Interviewer Right erm, do you remember any that you took?

Respondent Erm, I took quite a few plant Biology ones that were optional and...I can't think of any others (laughs)...

Interviewer Not to worry...do you feel erm from completing your first degree, do you feel it's given you a solid knowledge foundation?

Respondent Erm yes I do yeah, theres obviously quite a few areas obviously still to work on...I don't...you know...

Interviewer Yeah...

Respondent Woudn't feel completely comfortable with but yeah...

Interviewer Do you mean in Biology or do you mean in Physics and Chemistry?

Respondent Erm, more Physics and Chemistry but theres still you know some areas of Biology, things like respiration that I couldn't you know just go in and teach that (laughs)...

Interviewer Ok...

Respondent ...I would have to look up and kind of go over again before I could teach it I think effectively...

Interviewer Ok, erm so do you believe that your first degree has to a certain extent helped you towards preparing for your teacher training course?

Respondent Yeah definately...

Interviewer Ok...erm did you go on any erm work placements when you was on your degree or afterwards?

Respondent No, I didn't not on my degree.

Interviewer Ok and erm, can I ask you what your subject knowledge is like in the other core erm subject areas (research participant laughs!) like Physics and Chemistry....and Biology...

Respondent Quite poor in Physics I'd say erm...

Interviewer Ok...

Respondent But Chemistry I think , I'm alright with Chemistry it's just certain, you know, it's just kind of going over key things again.

Interviewer Ok, erm so have you taken any additional steps to improve your knowledge in the key sciences, have you had like an enhancement course or something...a course provided to you or...

Respondent No, nothing like that, we do do curriculum studies erm at university where we do have chemistry and physics sessions erm, but nothing outside of that.

Interviewer Were you aware that there's courses?

Respondent Yes...yeah

Interviewer But you opted not to take them?

Respondent Erm I thought you only had...I thought they were only available if you were trying to...say if I was Biologist specialism and wanted to do Chemistry, I thought it was...you could do the Chemistry enhancement...

Interviewer Right...

Respondent ...XXXX I didn't realise it was...

Interviewer Ok, do you think it should have been made a bit more clearer?

Respondent Yeah yeah (laughs)

Interviewer Ok, how would you describe your science background from a personal perspective if you had to describe it?

Respondent Erm, I don't know...what kind of thing?

Interviewer I suppose like you said that you know...is it Applied Biology you said...

Respondent Umhum...

Interviewer So it would mainly be Biology wouldn't it....

Respondent Yes, Yeah definately...

Interviewer Erm did anything...was there anything in particular in the applied part of...

Respondent Erm it's kind of...it's a mixture of so it's very high heavily biochemistry based...

Interviewer Oh right ok...

Respondent But genetic engineering and that kind of thing so that's.....

Interviewer Do you think it's helped you with practicals?

Respondent Yeah definately (laughs)

Interviewer Right...do you have any previous experience working with young people?

Respondent Yes...

Interviewer Could you elaborate please...

Respondent Yeah...I worked at the Centre for Life...

Interviewer Oh waw...ok

Respondent And so I worked there for four and a half years...

Interviewer Brilliant...

Respondent Erm, but two years like full-time teaching science labs so everything from erm how we know things are alive for you know really little kids all the way up to PCR with the A'level students...

Interviewer Waw...that's really good! So was that with young young people?

Respondent Yeah yeah...

Interviewer Ok so you've got quite a bit of erm experience there

Respondent Hmm...

Interviewer Erm, did you do like a week in a school aswell before you...

Respondent I did it Students Associate Scheme when I was at university and then I, we had to do erm a week in a primary school before...

Interviewer What's the Students Associate Scheme?

Respondent Erm sorry, it's you have to do...you do 15 days in a secondary school...

Interviewer Oh right...

Respondent Erm, so getting involved you know helping the kids out, getting involved in their lessons stuff like that erm so it's run collaboratively between N\*\*\* and N\*\*\* University...

Interviewer Oh right...

Respondent Yeah...

Interviewer Ok, erm thanks for that...erm so how many years have elapsed between your first degree and then starting your teacher training, is it about four did you say?

Respondent How many?...

Interviewer How many years have elapsed...like inbetween when you have worked?

Respondent Oh years erm just erm I graduated in 2009 so it's just about two years so...

Interviewer Oh right ok...not that long then...

Respondent No...not too long...

Interviewer Erm, when did you apply for the PGCE course?

Respondent Erm I applied to start last year, but didn't get on because it was full.

Interviewer Right ok...

Respondent And then I reapplied as soon as it opened, I think in October...

Interviewer Right...

Respondent ...erm and got my interview...I had my interview in December...

Interviewer Brilliant and then you got a place...(research participant laughs)

Interviewer Erm, why did you decide to choose this particular route into the teaching profession and not any other route?

Respondent Erm, I applied for a GTP aswell, erm but chose this one partly because I know a lot of people who have done this route and went through N\*\*\* University...

Interviewer Right...

Respondent ...and did a PGCE, erm and partly just the, I just thought with the GTP its not recognised everywhere you know, you know its not as recognised as a PGCE is so I just thought it would give me a more solid kind of base to work from.

Interviewer Ok...erm where do you get that perception from when you say its not as erm recognised as the PGCE?

Respondent Erm, its just...I don't know things like talking to other teachers and talking to people that I worked with...

Interviewer Yeah...

Respondent Erm and just things you hear like it not being recognised in Scotland and in some places abroad and stuff like that so...

Interviewer Do you think its less regarded in comparison to the PGCE?

Respondent That's how its put across yeah definately.

Interviewer Erm did you know of any other routes other than GTP and the PGCE?

Respondent Erm there is like the SCITT and things like that which I looked into aswell...

Interviewer Oh ok that's good...

Respondent Yeah...

Interviewer And was that your own research?

Respondent Yeah, quite a lot of research (laughs)

Interviewer When you came to the University, was the option there to do a GTP aswell?

Respondent Not at this University, no...

Interviewer Right...

Respondent ...I know N\*\*\* do them but erm...

Interviewer Ok...

Respondent ...its a completely different application for it.

Interviewer Erm, are you happy with the programme structure that's been set up for you?

Respondent I am yeah yeah, its really good.

Interviewer Oh that's good...what about, so its really good in university, is it good in school aswell?

Respondent Yeah, I think I was very lucky in my first school erm, my mentor was really good and we had all these professional training sessions, you know with all the NQT's and stuff like that so its quite nice to get you integrated into the school and get XXXX quite quickly.

Interviewer Lovely...erm have you erm have you been to doing erm teaching and observations or have you been doing mainly observations?

Respondent Erm no I've been doing quite a lot of teaching erm and haven't really done many observations since...we had a observation week before we started teaching formally which was before October half-term so I've done a few observations since then but mainly teaching.

Interviewer Ok, erm would you have preferred to have done more observations?

Respondent Erm, its one of those its quite hard like its nice, it would be nice yeah to do more observations erm but I do find it observations, if you go in with something that your particularly looking at its fine if its focussed...

Interviewer Yeah...

Respondent ...but yeah you have to I think, think about what you wanna focus on you know I mean what areas you want to work on and focus on before...before going in to make them useful.

Interviewer Ok...(participant laughs)...did you do any observations in other subject areas aswell?

Respondent Yes

Interviewer Yeah right ok...erm do you have a professional mentor in your school...first placement?

Respondent Yes

Interviewer Have they been allocated a time slot in their timetable where they would meet with you?

Respondent No (laughs)

Interviewer Was it here and there?

Respondent Erm, I probably met with him about twice in the whole time I was there (laughs).

Interviewer Erm is that your professional tutor?

Respondent Yeah

Interviewer What about your subject-tutor or do you call it a trainer?

Respondent A subject-tutor or mentor yeah...

Interviewer Yeah...how about with your subject-tutor?

Respondent Erm we met every friday erm we had like an hour slot on a friday that we met but we also, I only taught her lessons so she was always free you know to watch...she watched all of my lessons that I taught...

Interviewer Ok...

Respondent ...and then I knew when she was free so she was quite happy for me to go and see her and...

Interviewer Ok and did she give you constructive feedback on lessons?

Respondent Yeah...yeah

Interviewer And you found it helpful?

Respondent Umm yeah really helpful .

Interviewer Erm, do you know how many years experience erm your subject-tutor has as in teaching?

Respondent I don't know actually, I never asked her (laughs)...

Interviewer Ahh don't worry...do you know if she did a GTP or a PGCE?

Respondent She did a PGCE at D\*\*\*...

Interviewer Did she...

Respondent Yeah...

Interviewer Ok...erm what about your professional tutor?

Respondent I don't know, erm his been at the school for a very long time so he was an assistant head teacher so...

Interviewer Oh right, so his quite experienced...

Respondent Yeah...

Interviewer Erm how many of them showed examples of their own work or assignments to you?

Respondent Erm no...

Interviewer Would you have liked that?

Respondent Ermm yeah, it probably would have been quite helpful erm I'm not sure how it would transfer cuz she did hers at D\*\*\* University so I don't know how similar things would be...

Interviewer Ok yeah...erm now onto lesson plans when your preparing your lesson plans and planning them, what sort of input do you get from your mentor...your subject-tutor?

Respondent Erm, not a lot really erm, I got like erm a list of lessons you know to be taught in a sequence that she wanted them to be taught in...

Interviewer Right...

Respondent ...erm and then if I wanted any help I could go and see her but other than that she kind of just let me get on with it.

Interviewer Do you prefer that way or would you prefer for her to actively come to you and say let's have a look at your lesson plans?

Respondent Erm, it would be nice if, cuz she looks at my lesson plans on a friday like when we had our meeting, but she didn't really give any input into...

Interviewer Right...

Respondent ...you know what I had put in there and it would be quite helpful to have some input especially to start with like...

Interviewer Is it more like skimming and looking through...

Respondent Yeah...

Interviewer ...and telling you that's fine?

Respondent ...yeah and checking you know that I have my differentiation and my timings and stuff like that there so...

Interviewer Yeah...ok so you would probably like a bit more input there...

Respondent Yeah...

Interviewer Erm...have you talked about erm the teaching standards?

Respondent Yes.

Interviewer In detail or just kind of skimmed over?

Respondent Some of them in detail, some of the ones where I was trying to find evidence for and didn't understand, I was kind of going to her and talking about them erm but other than that no not really.

Interviewer Would you have liked a bit more support with that?

Respondent Yeah, I found that bit quite difficult to do (laughs).

Interviewer Ok...erm will you have or have you had any support with your assignments for University?

Respondent No.

Interviewer No...

Respondent ...not through school.

Interviewer And erm there's five assignments...is that right?

Respondent Erm...

Interviewer ...in total?

Respondent ...we got three, we've got TT1,2 and 3, PLC 1 which isn't an essay but PLC 2 is so I think it must be four.

Interviewer Four...ok...do you think that's enough for the year or do you think it's too much...do you think it eats into your teaching?



Respondent I think they have spread them out quite well so that...I mean we did one before we really started teaching and the next one is due in just after Christmas, so we've kind of got the Christmas break to write it.

Interviewer Ok...

Respondent Erm...but I don't know when the other two fit in yet just because we haven't been introduced to them yet (laughs).

Interviewer Right ok...you know in your first placement school...

Respondent Yeah...

Interviewer ...how many PGCE's and GTP's were in the Science Department?

Respondent Science?

Interviewer Yeah...

Respondent Just me...

Interviewer Just you? Ok...What were your expectations of the course before you started the training?

Respondent Erm, I had quite high expectations really, just because erm of my friends who did it...

Interviewer Right...

Respondent ...especially one who did it last year cuz our course leader's new, well she was new last year so I had quite high expectations of her cuz...

Interviewer Ok...

Respondent ...cuz I heard good things about her...(laughs)

Interviewer Oh good...and do you think your expectations have been met so far?

Respondent Yeah definately.

Interviewer Ok, have they been met definately with University side of things?

Respondent Umhuh...

Interviewer What about school side of things?

Respondent Erm, with regards to my mentor its a yes and my professional tutor not so much so (laughs)...

Interviewer Ok...

Respondent Erm yeah...

Interviewer What would you have liked to have seen more from your professional tutor?

Respondent Well, I think they were suppose to come in and observe a lesson which he never did (laughs)

Interviewer Did you chase that up or did you just leave it?

Respondent I didn't realise that they were suppose to do it until we have a questionnaire we fill out at uni about how whether we think everythings been met...

Interviewer Ok...and was that chased up by the uni?

Respondent No, I don't think so (laughs).

Interviewer Erm, what do you think will be the main challenges for the rest of the year then?

Respondent Erm, I've been told I'm going to G\*\*\* High's...quite a challenging school behaviour wise...

Interviewer Right...

Respondent ...so my behaviour management is definately something to work on.

Interviewer Ok...and have you taken any steps towards...

Respondent Erm, I have been doing some reading and things like that and just getting advice from my mentor and things like that because shes worked in a few challenging schools in the past...

Interviewer Right...

Respondent ...so it's quite helpful you know

Interviewer Yeah...

Respondent ...juts to get some tips from other people...and we had erm our NQT training session, one of them was on like behavioural management and stuff like that so.

Interviewer And did they erm provide you with like resources and references of books?

Respondent Yeah we got some resources and, it was quite nice just to hear what techniques other people use and stuff aswell so.

Interviewer Good...and how have you found behavioural management in your first placement?

Respondent In my first placement, it was...I wouldn't say it was easy but it was, it was a lot easier than I thought it was gunna be (laughs)

Interviewer Ok...

Respondent ...but apparently I take things for granted in the classroom so they can't say its all entirely (laughs).

Interviewer Do the students feedback on you? Do they say oh miss...

Respondent Yeah they have given me feedback yeah, really nice feedback so...

Interviewer Good, erm so you know training obviously apart from getting the qualification, erm what else are you trying to get out of it?

Respondent Erm...

Interviewer What would you like to say at the end of it...like ohh I've achieved this and...

Respondent I think it's just the satisfaction like of knowing that I've done it erm and kind of getting through it cuz its, you know I've found at times it be quite tough like work load wise erm, but just getting through it and kind of...I don't know, its always one of those things I never thought I'd be able to do...

Interviewer Yeah...

Respondent ...but getting to the end I think it is quite a big, quite a nice thing too.

Interviewer Hmm...ok (participants expresses nervous giggle)...and just the last thing erm in your own words now u've got an opportunity to kind of erm briefly summarise what your experiences have been so far up until December...you can summarise it anyway you wish.

Respondent Yeah...erm I think it's been really positive erm I've enjoyed teaching all of the classes that I've had, you know I've had some challenging behaviour erm, but I've build up some really good relationships with the students, erm quite disappointed to leave the first placement actually (laughs)...

Interviewer Awww...

Respondent I'd rather stay (laughs again).

Interviewer Awww...

Respondent Just cuz of the kids are so nice (laughs).

Interviewer Lovely...is there anything else you want to say that I've not mentioned?

Respondent Erm...

Interviewer Any ups or downs, anything where you would prefer to have more support?

Respondent More support...erm...as I say think its just the lesson planning really erm, so having some input into you know what they think is a good idea and what's not

erm (small thinking pause). I did erm...one thing that did annoy me was my professional tutor was we didn't get any safe guarding information...

Interviewer Right...

Respondent ...about you know the school and I did try and chase him up on that on several occasions about it and my mentor went and spoke to him on many occasions about it...so just stuff like you I just don't like having to chase around you know after people to get things that you kind of expect to get...(laughs)

Interviewer Yeah...hmm ok..

Respondent Ok...so yeah (laughs again).

Interviewer That's great well thank you.

Respondent It's ok.

### **Diamond Ranking Activity**

Respondent Right so erm I put 'support from my school based subject-tutor' at the top erm, I found that most influential just because I wasn't all that confident to start with...

Interviewer Yeah...

Respondent Erm, so having her support you know having her tell me that it was...not to take things for granted what happened in the classroom so that was quite important for me. Erm having support from erm the course leader as well as constructive feedback for lesson observations were really influential aswell...erm just so I can areas to improve erm and its having the...I guess having the back up of your course leader seeing things that your school tutors seen aswell when they came in and did observations and stuff like that and kind of backing up things that they've said which is always good for confidence building (laughs)...

Interviewer Totally...

Respondent Erm moderately influential we've got 'support for developing subject knowledge', 'support for lesson planning' which I've kind of put in the middle just because I did need some advice on getting it done...

Interviewer Right...

Respondent ...Erm to make sure that I wasn't leaving it till the last minute (laughs)...erm but I've put it in the middle just because I didn't get loads of support with it...but I did need some advice just erm to make sure it was done on time (laughs)...

Interviewer Ok...

Respondent Erm, watching other teachers in lessons is quite helpful...erm I didn't always get to watch the best teachers teach, so I think it might have been more influential if I'd seen you know better techniques and things use...

Interviewer Ok...

Respondent ...by those teachers erm...haven't had that much support with behavioural issues erm just because the school I was in...I didn't really need that much support, the kids were quite nice...erm but I think it might become more influential in my next placement (laughs)...

Interviewer We'll see when we come to do this again yeah...

Respondent Yeah definately (laughs)...erm 'support with carrying out practical demo's', I had quite a lot of experience with that so I didn't really take much support from people...erm regarding that....and then my professional tutor at the bottom just because he wasn't very helpful (laughs)...

Ok...(participant laughs again)

Interviewer Fab...thank you for doing that...

Respondent It's alright.

Interviewer I really appreciate it.

## H. Printed Material Request Form – Permission Agreement



### Printed Material Request Form – Permission Agreement

*To obtain copyright permission from Durham University you must fill out this form completely. This Agreement grants a non-exclusive, one-time use to reproduce the material in the English language. Permission is granted for the copy(s) specified below, and does not extend to material that is separately copyrighted. This Agreement does not include future editions or electronic forms of the work. Please note that it is your responsibility to ensure that the material you are requesting has not been referenced to another source. Please allow two to three weeks to process your request.*

Requester's Name: .....Jaswinder Jutla.....

University/Company:.....Newcastle University (School of Education).....

Address:..... King George VI Building, Queen Victoria Road,  
Newcastle upon Tyne, NE1 7RU.....

Phone Number: ...07917851364..... Fax Number:.....

Email:.....jaswinder.jutla@newcastle.ac.uk.....

#### **I request permission to use the following material:**

Title: .....The grass is greener....a comparison of two distinct pathways to Qualified Teacher Status with particular reference to the expectations and experiences of secondary physical education trainees.....

Author:.....Jackie Moses.....

ISBN # (if known): .....

Copyright Date:.....2009.....

Text Material, list page number:....Appendix 2 (Questionnaire design)....(total count)

If Illustrations, list table/figure number:.....(total number of figures/tables)

**I intend to use this material in the following way (briefly describe the intended use of the material you are requesting permission to us; please extra paper if required)**

My research interests are very similar to Jackie's (but in the context of secondary science education) and what she explored and found in her own EdD thesis. In particular, I would like to replicate her methodology in my own EdD research at Newcastle University but it will be used to conduct my personal EdD research in the context of Science Education. I want to see whether what Jackie discovered in her EdD research looking at P.E. trainee teachers experiences and expectations of

the PGCE and the GTP routes are similar to what Science trainees' experience on their PGCE/GTP courses.

I envision my EdD research title to be similar as the thesis entitled above but in the context of Science Education and will be entitled:-

A comparison of expectations and experiences of secondary science trainees' on two distinct Initial Teacher Training courses; the Postgraduate Certificate of Education (PGCE) and the Graduate Teacher Programme (GTP).

For this reason, I want to gain consent for the following:

1. To replicate the methodology used in this thesis and to implement the same questionnaire Jackie designed into my own EdD research in the context of Science Education.
2. To use/quote findings from her EdD thesis as supporting evidence once my own research findings begin to unfold.

**If permission is granted, I will fully acknowledge the author and publisher by properly crediting the source.**

**I AGREE TO THESE TERMS:**

\_\_\_\_ Jaswinder Jutla \_\_\_\_\_ J. Jutla \_\_\_\_\_  
Print Name Signature

**For Durham University Use:**

Permission is:  Denied  
 Granted

Conditions (if any)

Signature:.....*Colin Theakston*.....

Name: Colin Theakston

Title:....Academic Liaison Librarian.

Date:.....*15 August 2011*.....

## I. Consent form

**School of Education,  
Communication and  
Language Sciences**

King George VI Building  
Queen Victoria Road  
Newcastle upon Tyne  
NE1 7RU  
United Kingdom

### CONSENT FORM

#### Title of research study: -

Becoming a secondary science teacher: an exploration of key personal, professional and situated experiences & how these shape trainee teacher identities: a multiple case study

#### **The following section is to be completed by the research participant:**

I confirm that I have read (or had read and explained to me) the information sheet relating to the above-referenced research study and give my consent to take part in this research project:

I understand that interviews will be recorded

I understand that taking part in this research study is voluntary and that I can withdraw from the research project at any time.

Please print name in capital letters .....

Signed.....

Date.....





## **J. Summary of research project for study participants**

### **Title of research project**

Becoming a secondary science teacher: an exploration of key personal, professional and situated experiences & how these shape trainee teacher identities: a multiple case study

### **Research questions**

4. What personal, professional and situated experiences/ contribute towards supporting or challenging the development of student-teachers identity as science teachers?
5. What meanings do student-teachers construct from their perceived experiences and how do they learn from these in terms of identity development?
6. What are the key features of teacher education programmes (HEI and DRB) and school learning communities which support or challenge identity development?

### **Research design**

The personal, professional and situated experiences of three science GTP and three PGCE science students will be tracked throughout their training year. Three semi-structured interviews will be conducted individually with each trainee at three points of their training (start, middle and end). Trainees will also fill in a total of five short self-completion questionnaires every half-term and these will be used to base the last interview on. Other information such as course structure and government documents

will also be collected and explored. Confidentiality will be ensured throughout the research process and the final research findings will be openly available and shared with all those involved.

### **Anticipated research outcomes**

The anticipated study outcomes may potentially help improve the way in that Initial Teacher Training (ITT) is delivered by Higher Education Institutions (HEIs), Designated Recommended Bodies (DRBs) and schools in the future. The findings hope to provide:-

- Invaluable insights into how trainee teachers' personal, professional and situated experiences contribute towards shaping their identities as science teachers.
- Teacher educators insights into the training experiences of current trainees' in order to inform them on ways to improve training for future science trainees' across providers of ITT.

I would like to take this opportunity to thank you for agreeing to participate in this research. Please do not hesitate to contact me via email ([jaswinder.jutla@newcastle.ac.uk](mailto:jaswinder.jutla@newcastle.ac.uk)) if you have any concerns or questions about this project.

### **Project Supervisor: -**

Dr Pamela Woolner

Address: Room 2.55 KGV1  
School of ECLS  
King George VI Building  
Newcastle University  
Queen Victoria Road  
Newcastle upon Tyne  
NE1 7RU

[Pamela.woolner@ncl.ac.uk](mailto:Pamela.woolner@ncl.ac.uk)

0191 222 5470



**School of Education,  
Communication and  
Language Sciences**

King George VI Building  
Queen Victoria Road  
Newcastle upon Tyne  
NE1 7RU  
United Kingdom

