The role of emotions in e-learning in psychotherapy: a mixed methods study

by

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Research projects:

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Abstract

Research questions

1. What is the role of emotions in e-learning (in particular as it relates to a case example of online psychotherapy education)?
2. What methods can be used to detect and measure emotions in e-learning?

Methodology

These research questions are addressed by a systematic literature review and analysis of the following student data from the University of Sheffield's online MSc in Psychotherapy Studies:

i. a set of mental health/well-being outcome measures
ii. a linguistic analysis of forum postings using Linguistic Inquiry and Word Count (LIWC)
iii. qualitative interviews with ex-students

Findings

i. the mental health/well-being measure scores do not reliably detect changes in emotional processing
ii. the LIWC picks up individuals' emotional change but does not correlate strongly with the outcome measures.
iii. those learners who can trust others online are more satisfied, and more likely to engage in transformative learning. Of the methods employed, the student interviews gave the best insight into students' emotional experience.

Conclusions

Emotions are central topics for learning in a psychotherapy course; they are pivotal in terms of how students engage with an e-learning course, and with learners and tutors. Student engagement and satisfaction in e-learning are engendered by a collaborative learning approach, which encourages sharing of emotions through self-disclosure. Being online may provoke anxiety and make it harder for some students to develop the kind of trusting relationships needed to self-disclose; for other students, the anxiety is less problematic, and being online is a liberating and positive factor in their learning. The research suggests that learning could be personalized according to students' emotional preferences by adopting a learning analytics approach – providers of e-learning need to be aware of the emotional experience of e-learners, and equipped to respond appropriately to maximise opportunities for engagement and transformative learning.

1 INTRODUCTION

"First, anyone who seriously intends to become a philosopher must 'once in his life' withdraw into himself and attempt, within himself, to overthrow and build anew all the sciences that, up to then, he has been accepting."

(Husserl, 1977, p.2)

1.1 Research questions

The primary research question addressed by this thesis is "What is the role of emotions in e-learning in psychotherapy?" and the thesis does this by examining student data using a variety of different methods for measuring emotions online. The comparison of these different methods informs a secondary research question, namely "Which methods are most appropriate for examining the role of emotions in e-learning in psychotherapy?"

The context for this investigation is an e-learning MSc in Psychotherapy Studies at the University of Sheffield. The research comprises the following:

Literature review on:
  i. role of emotions in learning from (from psychotherapy education and e-learning literatures)
  ii. methods for measuring emotions

Study 1- Analysis of student data from a set of mental health/well-being measures

Study 2- Analysis of student data with a linguistic analysis tool

Study 3- Analysis of qualitative interviews of students from the programme to gain their views on the role of emotion in their e-learning

Conclusions from these analyses are then placed into context with what is known from the literature about the role of emotions in e-learning.

1.2 Background

This thesis arose from personal and professional interest in the topic, gained during my time as a researcher and online tutor on the MSc in Psychotherapy Studies at the University of Sheffield between 2002 and 2014. This provided me with daily opportunity to observe and engage in e-learning with an explicitly emotional component. Early on in this experience, I noticed that as a tutor, I found myself more comfortable in participating in online groups than I did in face-to-face settings, which struck me as significant. I also noticed some interesting issues surfacing among students, such as a tendency for some (but not all) of them to disclose very personal information to the group, after only a few

weeks on the course. I also found that some students were, like me, finding themselves freed up to contribute more online than in an attendance setting, whereas for others, the reverse seemed to be the case, and they felt more inhibited. These questions led me to consider studying the topic as a PhD, as I had access to an e-learning course in which to consider these issues, and was by this point, in 2004, contributing to project reports and peer-reviewed publications looking in to the effectiveness of e-learning in this context, e.g. along with colleagues who were co-ordinating the initial SEPTIMUS project, I was both surprised and fascinated by the intensity of emotions displayed and reported by students and tutors online (van Deurzen, Blackmore, & Tantam, 2006).

This work is important because emotions have a widely acknowledged role in learning, but the research base on the role of emotions in e-learning is still relatively small. In addition, approaches to large online datasets are rapidly developing, with the advent of "learning analytics". A number of questions arise - what are the particular emotional experiences which e-learning students encounter, and what impact do these have on their learning? How can e-learning courses be designed to take advantage of the power of emotional experiences to enhance learning, whilst also providing students with a safe and supportive environment in which to learn? What can new approaches to large datasets tell us about students' experiences of emotions in their learning? In this thesis, a variety of methods of tracking e-learners' emotional experiences during their studies will be used and assessed, to shed light on not only the impact of emotions in e-learning but also on the best methods for measuring this impact.

A word about terminology and definitions - the term "e-learning" has been used to describe the kind of learning that students engaged in. Occasionally, "online learning" has been used, or the context of "being online". The University of Sheffield refers to online programmes as "Distance Learning", "e-learning" or - increasingly – "online learning". As Jones (2015) notes, there are a number of terms, including "networked learning" and "technology enhanced learning", and each term has a different history, and emphasizes different aspects of the experience. Whilst the importance of networks, communities and collaborative learning might point towards the use of "networked learning", and this is discussed later along with pedagogical considerations, the concept of "e-learning" will be the focus for this thesis, given the use of this term by the University of Sheffield during the period when the course was running, and its use by the wider group of institutions who participated as research partners. Various definitions of e-learning are available, but Ally's version from 2004 provides a useful basis – "the use of the Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire

knowledge, to construct personal meaning, and to grow from the learning experience" (Ally, 2004).

As the internet continues to spread in availability and speed, the popularity and influence of e-learning continues to grow. In 2013, about 4.6 out of 10 US college students were taking at least one course online, and estimates suggest that by 2019, roughly half of all college classes will be e-learning based (Elearning industry, n.d.). Increasing numbers of attendance courses are becoming "blended" by offering certain aspects of the educational experience online. The 2014 and 2015 NMC Horizon Reports identify several key trends which are accelerating Higher Education technology adoption, such as the growing ubiquity of social media, the integration of online, hybrid and collaborative learning, and the rise of data-driven learning and assessment (Johnson, Becker, Estrada, & Freeman, 2014) and increasing use of blended learning and redesigning learning spaces (Johnson, Adams Becker, Estrada, & Freeman, 2015). In terms of the continued evolution of online learning, the 2014 report states:

> "Over the past several years, there has been a shift in the perception of online learning to the point where it is seen as a viable alternative to some forms of face-to-face learning… Progress in learning analytics, adaptive learning, and a combination of cutting-edge asynchronous and synchronous tools will continue to advance the state of online learning and keep it compelling, though many of these are still the subjects of experiments and research by online learning providers and higher education institutions".
>
> (Johnson, Becker, Estrada, & Freeman, 2014, p.18)

Not only is e-learning as a whole in the ascendancy, but its applications to health-related education are increasingly being recognised and valued. A WHO report concludes that e-learning is as good as traditional training for health professionals, and that it could greatly increase accessibility to students wanting to train as doctors and nurses worldwide; similar findings are noted by myself and colleagues in the context of psychotherapy training (Blackmore, van Deurzen, & Tantam, 2007), and it is this training course which provides the data for the current thesis.

As e-learning continues to be integrated as an approach to teaching and learning, both students and teachers need to understand how being online affects the dynamics of the learning community. Whilst e-learning has many strengths, it also presents challenges to learners and educators, and without an appreciation of these challenges, and some preparedness to face and overcome them, then efforts to implement e-learning and blended learning can backfire- "when education based on computer conferencing fails, it is usually because there has not been a responsible teaching presence and appropriate

leadership and direction exercised'' (Garrison, Anderson, & Archer, 1999, p.96). Some researchers go so far as to say that "the full promise of web-based education will not be realized, unless affective aspects are properly acknowledged (Goldsworthy, 2000; Spitzer, 2001)" (Zembylas, 2008a). At the end of their 2005 review article, Wosnitza and Volet comment:

> "The importance of research on emotion arousal in general and online learning in particular is widely acknowledged. Emotions are likely to take a more significant place in theory development and research in the future. The emphasis will be on the development of methodological tools and the study of the mechanism of disclosure of emotions. Online teachers and tutors are waiting for reliable instruments and explanations of the role of emotions in online-learning situations."
>
> (Wosnitza & Volet, 2005, p. 462)

This thesis aims to make a contribution to the development of such instruments and explanations.

The research has taken place within the context of a succession of research grants, funded by the European Union and led from the University of Sheffield. The table below summarises the research projects under which the data were collected, and the type of data available:

Year	Project name	Project partners	Description of project	Type of data available
2002-5	"Strengthening European Psychotherapy Training through Innovative Methods & Unification of Standards: SEPTIMUS". Leonardo da Vinci Programme, European Union project no. UK/01/B/F/PP/129_387, £400,000	1. Austria- Österreichischer Arbeitskreis für Gruppentherapie und Gruppendynamik 2. Czech Republic- Prazska vysoka skola psychosocialnich studii; Prazsky psychoterapeuticky institute 3. Ireland- Clanwilliam Institute; Institute of Creative Counselling and Psychotherapy 4. Italy- Scuola di Psicoterapia Comparata-SPC; Associazione per lo Sviluppo Psicologico dell'Individuo e della Comunita-ASPIC; CSTG 5. Poland- Department of Psychotherapy, Jagiellonian University; Medical College, Institute of Psychiatry and Neurology, Warsaw 6. Portugal- Associação Portuguesa de Terapias Comportamental e Cognitiva Lisboa; Sociedade Portuguesa de Psicoterapia Centrada Lisboa 7. Romania- Romanian Federation of Psychotherapy; Department of Psychology, Babes-Bolyai University 8. UK- University of Sheffield; New School of Psychotherapy & Counselling, London	SEPTIMUS, a European project led by University of Sheffield which implemented and evaluated a new, online psychotherapy training course across 8 European partner countries	- Student quantitative data from questionnaires about the background of students, and their satisfaction with the course (including a comparison of distance learners and face-to-face learners) - Student drop-out rates, and reasons for drop-outs - Student qualitative data from external evaluations
2004-6	"Disseminating European Education in Psychotherapy: DEEP". £120,000 Socrates/ Erasmus grant, EU project no. 28686-IC-2002-1-UK-ERASMUS-PROGUC-2	9. Austria - Sigmund Freud University 10. Czech Republic - Masaryk University 11. Romania - Hyperion University 12. Sweden - Linkoping University 13. UK- University of Sheffield	DEEP, a European project led by University of Sheffield which developed the SEPTIMUS programme into Masters level programmes across 5 European partner countries	Same as above- dataset combined with that of SEPTIMUS
2008-10	"Continuing Education in Psychotherapy- CEP". £300,000 Leonard da Vinci grant,	14. Belgium- Psychology Department University Leuven 15. France- Université Victor Sagelen Bordeaux 2 16. UK- The University of Sheffield 17. UK- Dilemma Consultancy Limited/NSPC	CEP, a European project led by University of Sheffield which translated the SEPTIMUS/DEEP	- Student data from a variety of participation/satisfaction measures

Year	Project name	Project partners	Description of project	Type of data available
	EU project no. UK/08/LLP-LdV/TOI/163_145		resources into Masters level programmes in 2 new European partner countries	- Student data from a set of mental health/well-being measures - Student online postings (analysis with a linguistic analysis tool)

Table 1 - Research projects providing data for thesis

The data being considered in this thesis arose from the *Continuing Education in Psychotherapy* (CEP) project, funded by the Leonardo da Vinci fund from 2008-10. This project was designed to disseminate an e-learning Psychotherapy Masters programme developed under previous funding arrangements (Tantam, Blackmore, & van Deurzen, 2006) by the University of Sheffield, the New School of Psychotherapy and Counselling (both UK), and various European partners to two new partners- Leuven University (Belgium) and Bordeaux University (France). Some of the CEP data were gathered to enable reporting to funders on the outcomes of the project; this thesis then substantially developed the analysis of the data, and added some new methods which were part of a speculative approach to find ways of providing an answer to the research question "What is the role of emotions in e-learning?" The following table lists all of the data used in the research, with an indication of whether their use originated from the CEP project or specifically for this thesis; what my role in generating the data was; why, how and when they were generated; and whether the data were used in the "Background" section 1.2 of this thesis, or in the main "Findings" section 4:

Type of student data	Decision made by CEP partnership or author alone	Author's involvement in generating data	Reason for creating data sub-set	Data collection tool used (including reference if relevant)	Method of data collection	When data were collected	Partners who provided data	Back-ground or thesis data
Factors relevant to collaborative learning (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	"Constructivist On-Line Learning Environment Survey (COLLES)"- ratings by students of their own collaborative learning on the following- relevance, reflective thinking, interactivity, tutor support, peer support, interpretation (Taylor & Maor, 2000)	Online survey completed by students	Middle of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Background
Online activity (quantitative)	CEP partnership	I was an active member of the learning community or "Community of Inquiry"	Data created by the learning environment, and are a reflection of the activity required of students on the course	Frequency count of student activities (viewing content pages, participating in online chat, asynchronous forum)	Collected automatically by Moodle database, and expressed as page views per week	Through-out taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Background
Student satisfaction (quantitative)	CEP partnership	No involvement in producing data, but involved in designing measure and collating data from online database	Data gathered as part of the funding arrangements for the course	Questionnaire items	Online survey completed by students	End of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Background
Module mark (quantitative)	CEP partnership	Involvement in assessment of student work, and	These data are a requirement of the University for	From assessment of students' academic performance	Collated by tutors and course	End of taught modules,	Sheffield	Background

Type of student data	Decision made by CEP partnership or author alone	Author's involvement in generating data	Reason for creating data sub-set	Data collection tool used (including reference if relevant)	Method of data collection	When data were collected	Partners who provided data	Back-ground or thesis data
		involved in collating marks	students to be awarded credits		director	2008-10		
Depression (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	PHQ-9: Depression scale of the Patient Health Questionnaire; (Kroenke, Spitzer, & Williams, 2001)- 10 items; high scores indicate increasing depression	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Findings
Anxiety (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	GAD-7: Scale of Generalized Anxiety Disorder; (Spitzer, Kroenke, Williams, & Löwe, 2006)- 7 items; high scores indicate increasing anxiety	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Findings
Well-being (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	WEMWBS: The Warwick-Edinburgh Mental Well-being Scale; (Tennant et al., 2007)- 14 items; high scores indicate increasing well-being	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Findings
Well-being (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	SWLS: Satisfaction with Life Scale); (Diener, Emmons, Larsen, & Griffin, 1985)- 5 items; high	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Findings

Type of student data	Decision made by CEP partnership or author alone	Author's involvement in generating data	Reason for creating data sub-set	Data collection tool used (including reference if relevant)	Method of data collection	When data were collected	Partners who provided data	Back-ground or thesis data
				scores indicate increasing well-being				
Spiritual well-being (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	SIWB: Spirituality Index of Well-Being Scale; (Daaleman & Frey, 2004)- 12 items; high scores indicate **decreasing** spiritual well-being	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Bordeaux*	Findings
Spiritual well-being (quantitative)	CEP partnership	No involvement in producing data, but involved in collating data from online database	Data gathered as part of the funding arrangements for the course	SAIL: Spiritual Attitude and Involvement List); (Meezenbroek et al., 2012)- 26 items; high scores indicate increasing spiritual well-being	Online survey completed by students	Start and end of taught modules, 2008-10	Sheffield, NSPC, Leuven**	Findings
Linguistic analysis of emotional content of students' postings on an online discussion forum (quantitative)	Myself alone	I was an active participant in chatroom and forums; involved in collating data from online database	Data arose naturally as part of students' experience of being online with one another and discussing relevant topics; they were also a requirement of participating, and passing, a module	Linguistic Inquiry and Word Count (LIWC) text analysis software program (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007)	Discussion forum postings collected automatically by Moodle database and put through LIWC by myself	Throughout taught modules, 2008-10	Sheffield, NSPC, Leuven, Bordeaux	Findings
Interview data (qualitative)	Myself alone	I interviewed a sample of students on their	Data collected to obtain students' subjective accounts	Qualitative interviews	Interview led by myself - whether these	Aug 2013-Dec 2014	Sheffield	Findings

Type of student data	Decision made by CEP partnership or author alone	Author's involvement in generating data	Reason for creating data sub-set	Data collection tool used (including reference if relevant)	Method of data collection	When data were collected	Partners who provided data	Back-ground or thesis data
		experience; involved in transcribing data from voice recorder	of the role of emotion in their online learning		are conducted online or in person, and individually or as a focus group, is to be decided)			

Table 2 - Data collected from students

* - Leuven opted not to administer the SIWB to students
** - Bordeaux opted not to administer the SAIL to students

For the CEP project, the e-learning programme was run from the University of Sheffield, from a Moodle learning environment with webhosting provided by Dilemma Training Ltd. Moodle is "a free, open-source PHP web application for producing modular internet-based courses that support a modern social constructionist pedagogy" (Moodle, n.d.).

The MSc in Psychotherapy Studies, delivered by the University of Sheffield, was a 2-year part-time e-learning programme; it was not a clinical training course, and did not contain the necessary elements, such as supervised placements, for a practical qualification in psychotherapy (see Appendix I for course curriculum). Other partners implemented their programmes in slightly different ways, as will be described in due course. The Sheffield programme was implemented as a combination of course materials (webpages), discussion forums and weekly chatrooms. The programme aimed to provide e-learners with an increased knowledge base of the theoretical aspects of psychotherapy theory, along with the opportunity to reflect on clinical practice (if they were clinicians) and/or personal experience. An emphasis on the importance of students' emotional development (both in their personal/professional lives and in their time on the programme) was evident from the learning objectives of the modules/programme, the kinds of activities and assessments used in the learning, and the choice of collaborative learning as a model. For example, the "Existential Issues" module, as implemented by the University of Sheffield, had as its learning objectives the following:

1. knowledge of categorisation of existential and human issues
2. ability to demonstrate an integrated perspective on existential philosophy and its relevance to psychological treatment
3. ability to evaluate individual problems relating to these existential and human issues
4. ability to select the appropriate theoretical model for therapeutically intervening with these issues
5. ability to justify theoretical model and interventions to peers
6. update of contemporary psychotherapy/counselling literature and developments in the field
7. ability to use written expression in conjunction with appropriate academic sources and conventions to present logical analysis and argument in relation to the unit
8. skills in use of collaborative eLearning methods and online resources

Several of these learning objectives (e.g. 1,2,5,7) involved the learners' ability to understand and communicate the emotional impact of existential issues, and thus required engagement of emotional processes during the learning.

The mode of assessment used at the University of Sheffield was split between the following (other partners were free to use their own assessment protocols):

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Mode of assessment	Proportion of module mark
Essay(s)/Coursework- 3,000 word essay	75
Other Assessment *Multiple Choice Questions (quizzes)* 3 MCQs per week, delivered and assessed via WebCT, to ensure that students read the online lectures and course materials within an allocated time.	10
Online Seminar/Discussion Board Participation Students' participation will be rated according to the following criteria which will be made available to the students before the beginning of the unit: o Has the student posted at least three substantial messages on the discussion board in that week of the course? o Have the student's posts demonstrated relevance and originality of content, theory-practice link and accessible communicative style o Have the student's posts demonstrated a familiarity with and analysis of the relevant week's learning materials (lectures and/or readings)? o Have the student's posts made a useful contribution to the discussion, which demonstrates an engagement with others' posts and discussions on the topic? Student Discussion Board contributions must be considered to be satisfactory on each of the scales to be awarded a pass. No distinctions will be offered. Unsatisfactory students may request detailed feedback, and this will normally be provided, formatively, during each week of the term if students are not making satisfactory progress.	15

Table 3 - Mode of assessment in a course module

This gave appropriate emphasis on the need to be able to communicate effectively in academic terms, with citations of relevant literature, as well as to engage with the course materials, and with peers in online discussions. All categories were potentially accessing emotional material, and especially the last one of online discussion.

The partnership (including myself as a Research Assistant) wanted to evaluate student experience on a number of dimensions and selected a variety of tools to do so, as shown in table 2. Although some of these were more focused on students' emotional experience than others, the results have been included in this "Background" section 1.2 as being important exploratory steps in the journey towards measuring students' emotions, and in formulating the research question for this thesis. Analyses of data in the "Background" section 1.2 were undertaken for the Final Report of the CEP project, and were conducted by myself with support from Prof Tantam, although have not hitherto been published in a peer-reviewed journal. Data are shown for the following categories:

1. Collaborative learning measure
2. Data on student activity
3. Student satisfaction measure
4. Module mark

The other tools ("well-being" measures, linguistic analysis of forum postings and qualitative interviews with ex-students) are more directly focused on students' emotions, and thus data from these are included in the main body of this thesis (under "Methodology", "Findings" and "Discussion" sections).

1.2.1 Collaborative learning

The "Constructivist On-Line Learning Environment Survey (COLLES)" (Taylor & Maor, 2000) was chosen by CEP partners as it measures exactly the kind of collaborative learning processes that project partners were interested in, and the links between collaborative learning, student engagement and the role of emotions needed to be explored. Speaking about the COLLES, Taylor and Maor comment:

> "Because our teaching is based on the referent of social constructivism, we designed the COLLES to help assess the extent to which our web teaching enriches our distance students' ways of knowing. The COLLES generates a measure of students' perceptions of both their preferred and actual on-line classroom environments… Social constructivism is an epistemology, or way of knowing, in which learners collaborate reflectively to co-construct new understandings, especially in the context of mutual inquiry grounded in their personal experience."
>
> (Taylor & Maor, n.d.)

Furthermore, the COLLES was available via Moodle so it was simple for partners to implement and give to their students. As the students were being asked to complete pre- and post-module measures (see below), it was decided to give the COLLES, a 24-item questionnaire, at the mid-point of the module to space out the burden of completing questionnaires.

The COLLES scale provided feedback on student self-rated levels of perceptions of both their preferred and actual on-line classroom environments by providing feedback on self-rated levels of:

- relevance, e.g. "my learning focuses on issues that interest me";
- reflective thinking, e.g. "I think critically about how I learn";
- interactivity, e.g. "other students respond to my ideas";
- tutor support, e.g. "the tutor models good discourse";
- peer support, e.g. "other students value my contribution";
- interpretation, e.g. "I make good sense of other students' messages";

Whilst these factors are not purely emotional, they do have connections to emotional experience, e.g. experiencing peer support is likely to have a strongly positive emotional component.

In the 2009-10 year, students from Sheffield (n=35), NSPC (n=9), Leuven (n=14) and Bordeaux (n=8) provided data; students on a comparable face-to-face psychotherapy training (n=47) also provided data (see Appendix XIXa). The data are shown below graphically:

Constructivist On-Line Learning Environment Survey (COLLES) scores
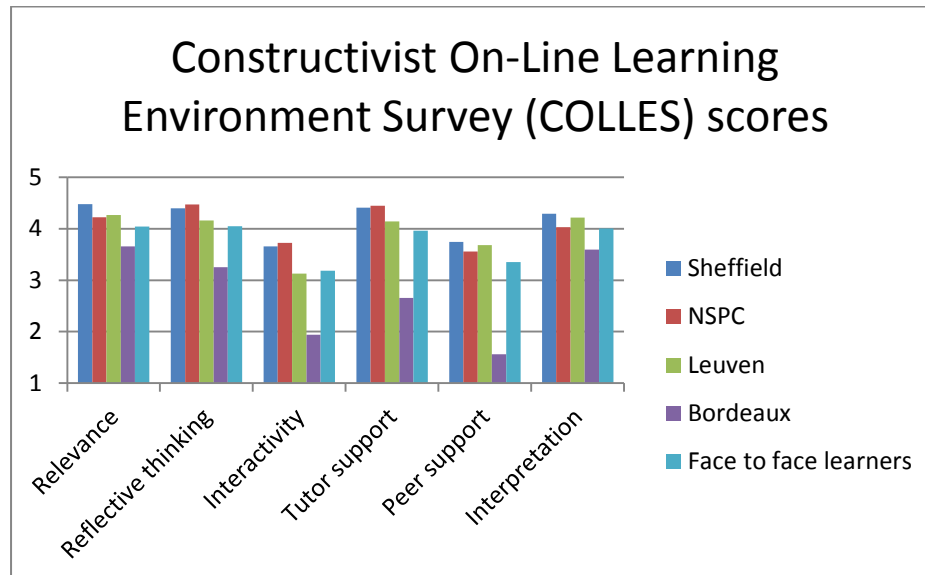
1- Almost never; 2- Seldom; 3- Sometimes ; 4- Often; 5- Almost always

Figure 1 - COLLES scores by partner

The results suggest that students from Sheffield and NSPC self-rated their collaborative learning experience more highly than those from Leuven, Bordeaux and F2F learners. In fact, e-learners from Bordeaux were the only online learners to rate their experience lower than F2F students. As will be discussed, Bordeaux did not implement synchronous chatrooms and rarely used asynchronous forums.

1.2.2 Student activity

Student activity levels were agreed by CEP partners to be important markers of participation and engagement, and to be able to consider emotional engagement, it was important to have a conception of how practically engaged students were. Activity was measured via frequency counts from the Moodle database, which listed activity under the following categories:

- course view
- resource view
- user login
- user logout

It was unclear how these categories could be realistically weighted - a login might precede a short 1 minute visit to a webpage, a 1 hour chatroom session or a 2 hour block of reading

the course materials. Data were not available to verify exactly how long each visit was for, or what activity took place, and the sheer volume of activity necessitated a method which did not involve detailed consideration for each figure. Therefore, all visits were assigned equal weightings and aggregated to provide a numerical figure for each student for each module. Figures were then calculated for activity by all students in the year 2009-10 across the "Existential Issues", "Conflict" and "Ethics" modules:

Partner	No of students providing activity data	Students' average weekly activity level
Sheffield	40	200
NSPC	13	158
Leuven	21	113
Bordeaux	14	15
All	88	144

Table 4 - Student activity levels by partnerships

Based on these average activity levels, and the COLLES scores shown previously, it was possible to differentiate between partners in terms of the extent of collaborative e-learning activity that students engaged in, and characterise them as adopting a high, medium or low collaborative e-learning approach:
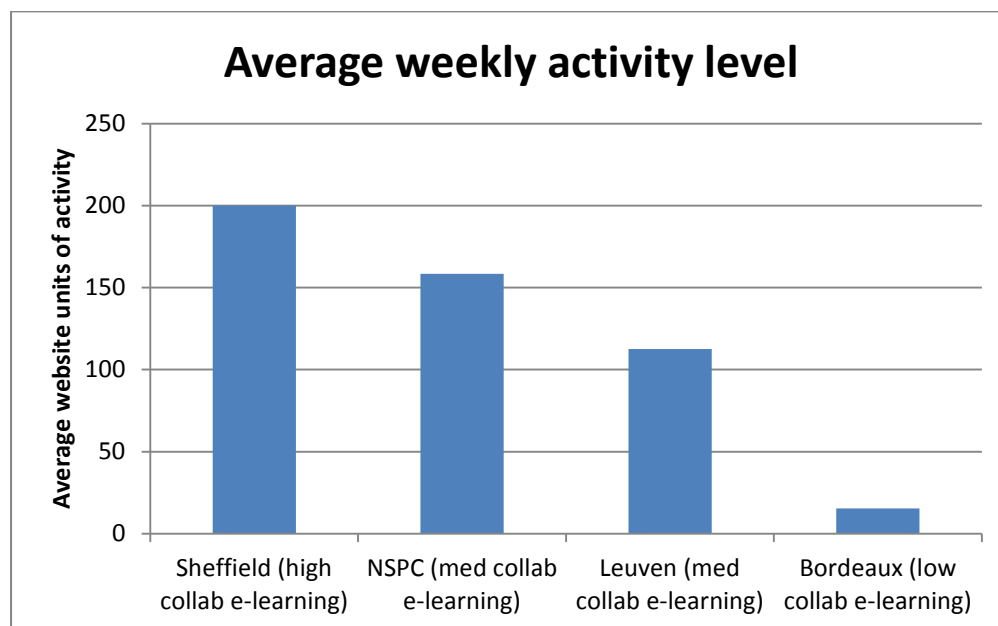
Figure 2 - Student activity levels by partner

The marked difference in activity for Bordeaux was attributable to reduced use of forums and chatrooms by this partner- although there was discussion of best practice amongst partners, each partner was free to implement the e-learning programme in their own way and to adopt pedagogical approaches as they wished.

1.2.3 Student satisfaction

Student satisfaction levels were calculated by looking at scores for the following four items in post-module questionnaires:

- I would recommend this course to a friend/colleague
- This course fully met my expectations
- Overall, I am satisfied with this course
- Compared to face-to-face classroom learning, this course has been an effective learning experience

where participants replied from a 5-point scale (1 - strongly disagree; 2 - disagree; 3 - neither agree nor disagree; 4 - agree; 5 - strongly agree). Data were collected from all modules, in the year 2009-10:

	I would recommend this course to a friend/ colleague	This course fully met my expectations	Overall, I am satisfied with this course	Compared to face-to-face classroom learning, this course has been an effective learning experience
Sheffield (n=84)	4.18	3.37	4.15	3.27
NSPC (n=14)	3.64	3.14	3.50	3.07
Leuven (n=20)	4.75	4.40	4.70	4.25
Bordeaux (n=5)	3.40	3.20	3.60	3.00
Face-to-face learners (n=6)	3.00	3.00	2.50	-

Table 5 - Mean satisfaction scores by partner

Correlations with other measures will be shown below under section 1.3.

1.2.4 Module mark

Module marks were awarded according to the individual partners' institutional assessment criteria, and marks collated for analysis. Whilst students typically place a high level of importance on the marks they receive, and these are very often the source of strong emotional reactions, on their own they are of little significance. Given that student marks were not reported in the CEP project, only marks for Sheffield students were available to me (2009-10):

Module	Average mark
Existential (n=15)	65.9
Conflict (n=13)	65.3
Ethics (n=3)	69.0
Development (n=5)	65.4

Table 6 - Mean student mark by module

1.3 Correlations

The key relationships for examination were between collaborative learning and the other measures, due to the links between collaborative learning and emotions in learning. The distribution of data had a bearing on which statistical tests could be used, and calculations of normality or otherwise are shown via 'z' scores in Appendix XXb. Where one or both datasets were not normally distributed, a Kendall's Tau test was used; where one or more components of a measure were not normally distributed, the overall measure scores were considered to be not normally distributed, as was the case with COLLES scores. It should be noted that given that these are correlations, it is not possible to comment on causation, merely on the significance or otherwise of relationship.

1.3.1 Collaborative learning and student activity

To investigate the relationship between COLLES scores and student activity, a Kendall's Tau test was undertaken for all partners' data (see Appendix XIXb). The data suggest there are strongly significant correlations between students' online activity levels and self-rated levels of relevance, interactivity and peer support of their learning, with significant connections between student activity and reflective thinking, i.e. student activity levels and various collaborative learning factors are positively related.

1.3.2 Collaborative learning and student satisfaction

Student satisfaction levels by partner are shown below, where P1 is Sheffield, P2 is NSPC, P3 is Leuven and P4 is Bordeaux:
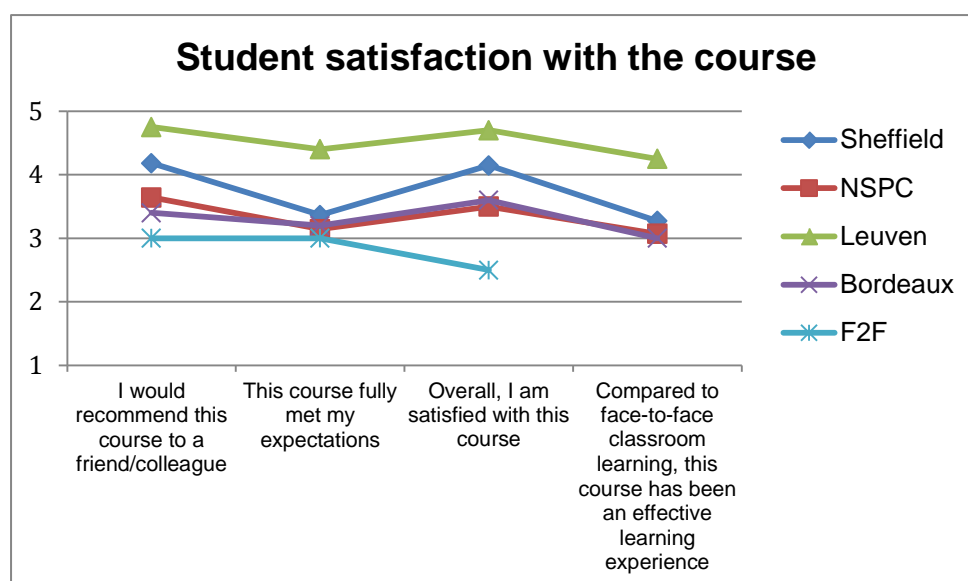
Figure 3 - Student satisfaction with the course by partner

As suggested by the previous correlation, student activity levels and various collaborative learning factors are positively related, so it is possible to hypothesize that high-medium collaborative e-learning produces higher levels of student satisfaction than low collaborative e-learning, which in turn produces higher levels of student satisfaction than face-to-face learning. To investigate the relationship between COLLES scores and student satisfaction, a Kendall's Tau test was undertaken (see Appendix XIXc). The data suggest that there is a significant correlation between students' satisfaction levels and self-rated COLLES scores.

1.3.3 Collaborative learning and student mark

Student marks were available for P1 only - other institutions gave a pass/fail only. Sheffield students were assessed by combining a 3,000 word assignment (75% of mark) and an assessment of their performance throughout the module (25% of mark) (this latter included attendance and contribution in chatrooms and forums, plus scores in online MCQs). To investigate the relationship between COLLES scores and student mark, a Kendall's Tau test was undertaken (see Appendix XIXd). The data suggest that there are no significant correlations between student mark and collaborative learning measures.

1.3.4 Student activity and student satisfaction

To investigate the relationship between student activity and student satisfaction, a Kendall's Tau test was undertaken (see Appendix XIXe). The data suggest that that there are no significant correlations between student activity and student satisfaction.

1.3.5 Student activity and student mark

To investigate the relationship between student activity and student mark, a Kendall's Tau test was undertaken (see Appendix XIXf). The data suggest that that there are no significant correlations between student activity and student mark.

1.3.6 Student satisfaction and student mark

To investigate the relationship between student satisfaction and student mark, a Pearson's test was undertaken (see Appendix XIXg). The data suggest that that there are no significant correlations between student satisfaction and student mark.

From these correlations, a summary of the relationships is shown below:

	Collaborative learning (COLLES)	Student activity	Student satisfaction	Student end of module mark
Collaborative learning (COLLES)	-	Strongly related	Strongly related	No statistically significant relationships
Student activity	-	-	No statistically significant relationships	No statistically significant relationships
Student satisfaction	-	-	-	No statistically significant relationships
Student end of module mark	-	-	-	-

Table 7 - Summary table of correlations between all measures

1.4 Conclusion

In terms of what the measures considered in this Background section 1.2 can tell us about the role of emotions in e-learning, we can conclude the following:

- Collaborative learning (CL), which is understood from the research literature to have a high (but not yet fully characterized) affective tone, increases with increasing student activity and student satisfaction; this suggests that those students who are

more willing to engage with one another's emotional processes are more likely to be active online, and satisfied with their experience (and vice versa)

- There is no relation between CL and student mark, i.e. the better performing (academically speaking) students are not engaging in more CL
- Student activity on its own is not related to levels of satisfaction or academic mark
- Student satisfaction increases with increasing CL, i.e. the more satisfied students are the ones who engage in a type of learning which involves collaboration, and possibly emotional transactions (and vice versa)
- Student mark is not related to satisfaction levels

Whilst some of these conclusions are counter-intuitive, e.g. one might expect student mark to be related to student activity, and/or satisfaction levels, it may be that low student numbers account for the lack of a correlation. In terms of these tools' ability to measure the emotions of e-learners, the COLLES scores look like they can potentially give an indication of emotional and cognitive engagement, but we will return to test this further in study 1 (section 4.1) where these background measures are compared with the well-being/mental health measures.

2 LITERATURE REVIEW

The purpose of the literature review is to summarize the existing evidence on the role of emotions in e-learning, and the methods of measuring them.

From initial scoping searches and reading of the literature, the base of published research is relatively small. There is however a substantial history of research into the role of emotions in face-to-face learning, and clearly, much of the literature on emotion and learning is also relevant to e-learning contexts; this will be briefly summarised in the "Narrative Summary", in order to provide some insight into the ways in which e-learning differs from other learning formats in terms of emotional processes. Is it the case that some aspects of e-learning are importantly different to face-to-face learning, and have an impact on the kinds of emotional experiences and transactions which take place online? And if so, is it possible to understand what these differences are, and what effect they have?

Marchand and Gutierrez characterize the literature on emotions in online learning environments as focusing on three areas:

1. in-depth description of both the arousal and expression of emotion during online learning tasks
2. reports of instructional techniques and course design that can be used to enhance e-learners' emotional experiences and engagement with coursework
3. quantitative considerations of emotion as a personal factor that influences student learning and performance.

<div align="right">(Marchand & Gutierrez, 2012, p.2)</div>

The motivation for the current thesis is primarily to explore the third of the three areas outlined above - with the caveat that qualitative considerations are given equal importance - whilst bearing in mind implications for the other two.

2.1 Search strategy

It is important to ensure that high quality academic sources are utilised throughout a literature review. Discussing strategies for finding such high quality resources, Ford (2012) suggests that this task can be approached in one of two ways:

1. going for "low-hanging fruit"; or
2. engaging in controlled systematic searching

Ford suggests that "The controlled systematic searching approach is appropriate when you want to maximise your chances of finding the *best* information sources and *minimise the chances of missing potentially important ones*" (Ford, 2012, p. 68) whereas "The 'low-hanging fruit' approach is suitable when you want quick, least-effort access to some relevant

scholarly information sources to get you started" (Ford, 2012, p.69). The systematic searches in this thesis were based on my previous experience of conducting systematic reviews (Blackmore, Tantam, Parry, & Chambers, 2012) and thus largely followed the guidelines in the Cochrane Handbook for reporting such work (Higgins & Green, 2011).

2.1.1 "Low-hanging fruit" and other searches

The research question requires a theoretical background on both emotions and (e-) learning. The "low hanging fruit" strategy was used first, in order to gain an overall sense of the literature before going on to more detailed systematic searches, and under this umbrella term, a variety of approaches was used to pick up relevant literature, as detailed below:

Description of approach	Conducted online, in person, or both
Google and Google Scholar searches of topics, selected theorists/authors, particular communities of interest	Online
Inspection of relevant journals	Both
Hand-searching of PhD theses and course reading lists via the University of Sheffield's library	In person
Contact with selected others (including supervisory team, colleagues and selected authors) for recommendations	Both
Inspection of selected journal articles (particularly their "Introductions") for relevant references	Both

Table 8 - "Low-hanging fruit" approaches for literature searching

There were no restrictions on where the research came from, beyond the indexing schemes employed by Google Scholar itself. Thus the "low-hanging fruit" search can be considered to have covered all relevant types of literatures. However, initial scanning of search results confirmed that certain important areas of thought on the research question were not well-represented, e.g. neurobiological research on the brain's ability to process emotions and to engage in learning online, and the philosophical underpinnings of links between emotion and learning. It was therefore necessary to target particular topics using the strategies outlined above.

2.1.2 Controlled systematic searching

Controlled, systematic searches were undertaken in March and April 2012. To avoid unmanageable numbers, searches focused initially on publications with relevant keywords appearing in the title alone. Keywords selected were *emotion* and its synonym *affect,* and *e-learning* and its synonyms *elearning, online learning, technology enhanced learning, networked learning* and *computer-assisted learning*. The term "affect" did produce a number of false results, due to its use as a verb ("to act on, produce an effect or change in") instead of a noun ("feeling or emotion"); also the term "affect" was erroneously used in several papers when "effect" was the grammatically correct word.

Studies examining "emotional intelligence" were generally avoided, unless they also commented specifically on emotions per se, as the term "emotional intelligence" is often used in a variety of ways. The most commonly accepted definition is the "ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behaviour" (Colman, 2009) which is too general to be applicable to the research question under examination here. Similarly, studies focusing on "learning styles" were not included unless there was specific comment on the role of emotion in learning.

Databases were selected to ensure wide coverage of topic areas (for details of the search strategy, see Appendix II). A total of 261 relevant articles were identified; after de-duplication across all searches, this number dropped to 233. These results were screened for relevance and 201 were excluded from title, abstract or, where necessary, from the full article (see figure 4 below):

```
┌─────────────────────────┐
│ Potentially relevant     │
│ studies identified and   │
│ screened for retrieval   │
│ (n=233)                  │
└─────────────────────────┘
        │              ┌──────────────────────────────┐
        │──────────────▶│ Studies excluded on screening │
        │              │ of title and abstract (n=187)  │
        ▼              └──────────────────────────────┘
┌─────────────────────────┐
│ Studies retrieved for    │
│ more detailed evaluation │
│ (n=46)                   │
└─────────────────────────┘
        │              ┌──────────────────────────────┐
        │──────────────▶│ Studies excluded (n=14)        │
        ▼              └──────────────────────────────┘
┌─────────────────────────┐
│ Studies included in the  │
│ literature review (n=32) │
└─────────────────────────┘
        │              ┌──────────────────────────────┐
        │──────────────▶│ Reviews (n=5)                  │
        ▼              └──────────────────────────────┘
┌─────────────────────────┐
│ Studies with usable      │
│ outcome data included in │
│ the literature review    │
│ (n=26)                   │
└─────────────────────────┘
```
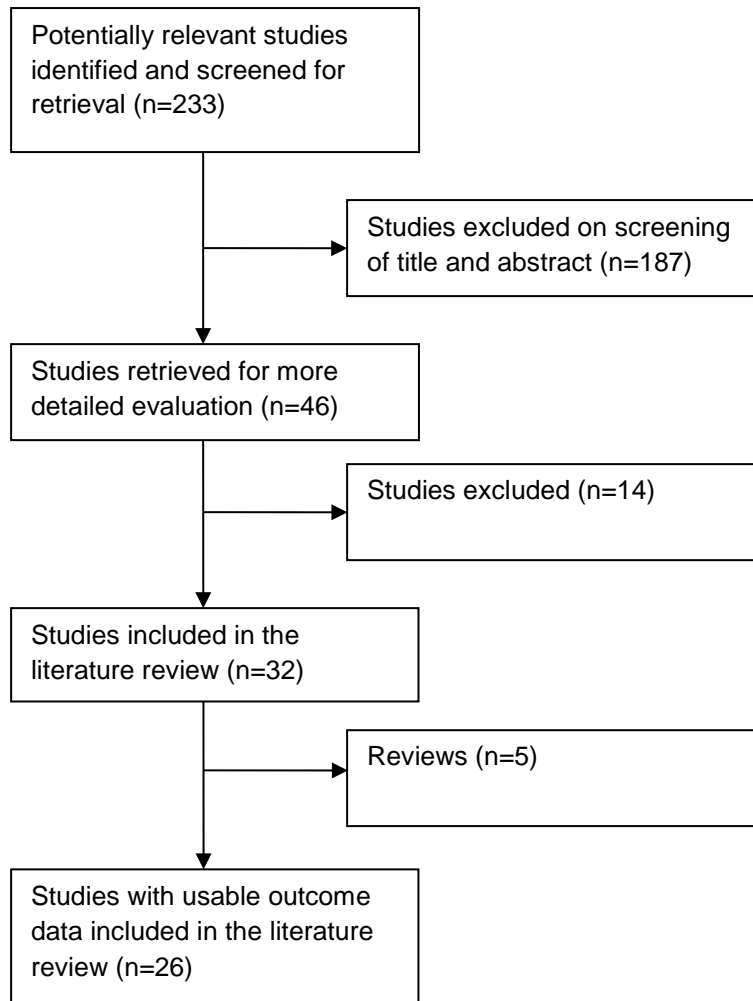
Figure 4 - Consort diagram of the flow of included studies from systematic searches

The 31 relevant articles were identified from the following sources:

Source	Number of articles included
Web of Knowledge	10
Google Scholar	8
Mendeley	2
OvidSP	18
Other searches	1
Duplicates removed	8
TOTAL	31

Table 9 - Sources of included articles

Characteristics of the studies are shown in a table (see <u>Appendix III</u>). NB - Google Scholar covers material found in two major educational databases, ERIC and BEI, so they did not need to be queried separately.

After the initial "low-hanging fruit" and "controlled systematic" searches were undertaken, the results were collated and analysed. From this point onwards, and for the remaining duration of the research, subsidiary searches were undertaken, and references added incrementally as they came to my attention via further reading and "low-hanging fruit" searches.

2.1.3 Excluded materials

The most common reasons for excluding materials were that the research did not in fact focus on the role of emotions in e-learning, but looked at more general concepts such as student motivation, learning style, emotional intelligence, readiness for e-learning, student/staff adoption of e-learning courses, cultural issues or other issues relating to e-learning design. There were also several articles relating to "affective computing", speech recognition, facial recognition and eye-tracking systems and other related technologies which are being developed to enable detection of students' emotional states. A few papers reported on efforts to develop virtual teaching systems using avatars or similar methods. Finally, as mentioned above, a number of articles were picked up by the search strategy via their incorrect use of the term "affect".

2.2 Narrative summary - role of emotions in learning

This section summarises findings from the literature review as a narrative synthesis (Popay et al., 2006), by aiming to "survey the state of knowledge on a particular topic" (Baumeister & Leary, 1997). The summary focuses on findings from the final data set of the systematic literature and "low-hanging fruit" searches; but where appropriate, other findings from general reading and from included studies' reference lists are also integrated.

2.2.1 The nature of emotions

The literature reviewed for this thesis encompasses a number of different basic theories of what emotions are, and it is important for this thesis to be clear from the start on theoretical underpinnings. The concept of "emotion" has been studied from a large number of perspectives, including evolutionary, behaviourist, componential, socio-cultural and neuro-scientific (Feidakis, Daradoumis, & Caballe, 2011). Similarly, emotions have been conceptualized as "multi-component, coordinated processes of psychological subsystems

including affective, cognitive, motivational, expressive, and peripheral physiological processes" (Pekrun, 2006, p.316) and as "holistic episodes that include physiological, psychological, and behavioral aspects" (Schutz, Hong, Cross, & Osbon, 2006, p.345).

Clearly, it is not possible to do justice to all of these areas in this review, but it is possible to pull out the major themes identified in the e-learning literature, to come to an understanding of the existing knowledge-base on what impact emotions have in the e-learning context.

There are longstanding difficulties in reconciling emotional and cognitive processes. O'Regan notes that:

> "learning theories, particularly those concerned with learning at higher levels of education, have largely treated emotion and cognition as occupying separate realms, cognitive processes having prime (or even sole) place in the educational scheme of things."

> (O'Regan, 2003, p.78)

Indeed, if we accept the distinction between emotion and cognition, and wish to go beyond the experiencing of emotions to describing, defining or theorizing about them (as we are doing here), then a (cognitive) process of intellectualising does need to take place. But cognitive processes do not emerge via an emotion-less process, any more than emotions can be evoked or experienced without cognitive action. Some theorists have done this, and proposed definitions of emotion. For example, Gerrig and Zimbardo define emotion as "a complex pattern of changes, including physiological arousal, feelings, cognitive processes, and behavioural reactions, made in response to a situation perceived to be personally significant" (Gerrig & Zimbardo, 2002, p. 394).

But others speak of the impossibility of the task:

> "One of the reasons for the continuing separation of emotion and cognition is the difficulty in defining just what it is we are talking about when we speak of emotion, there being many perspectives and a multitude of definitions."

> (O'Regan, 2003, p.78)

Given this difficulty, also noted by others e.g. Ortony & Turner (1990), and the unlikelihood of finding a definition which will be satisfactory from all theoretical perspectives, it might be advisable to adopt a more pragmatic, open attitude to their definition. Writing about "The flavour of emotions", Tantam comments:

> "What is obviously at issue is what an emotion is. If we choose it to be only an experience associated with a feeling, then we experience emotions in distinct episodes. These are likely to be less frequent mental occurrences than thoughts, and the number of happenings that cause emotions are quite limited. If we choose to consider that emotions enter into the processing of any new or changed happening, then it is likely that there is a constant undercurrent of emotion in our minds and that these emotions do not supplant thought, but

complement it. We can also associate emotions particularly with feelings that occur at times of mental conflict when they may be disruptive, or we can associate them with gut feelings or heart promptings which show us a direction when our thoughts cannot. It seems likely that all of these differing views of emotion are right: that emotions can function in all of these ways, and more, just as thought may be the means to philosophize or to deceive oneself."

(Tantam, 2003, p.26)

As well as the variety of approaches to theories of emotion, various taxonomies of emotion have been proposed (see Appendix V). Zembylas comments that:

"while both the psychological and the sociological perspectives offer important insights, claiming that emotions are simply a matter of the individual or the group does not sufficiently address the complex role of emotions. Rather, a more useful approach locates emotions in the liminal space between individual and social constructivist approaches, challenging the divisions between individual vs. social, private vs. public, and emphasizing that emotion operates as a constitutively reciprocal component in the interaction/transaction of the individual and the social (Leavitt, 1996)".

(Zembylas, 2008a, p.73)

Given this multiplicity of perspectives, perhaps what an emotion *does*, or makes possible, is more important than what an emotion *is*. By this reasoning, a definition of emotion should, in fact, be a description of its action, and what it makes possible, rather than what it appears to *be.* Perhaps as well as reasoning, it is permitted here to employ feeling or sensing, and if so, an aspect of theory of emotion which *feels* important is that emotions are not simply things which happen to us, they are "intimately bound up with judgements we make, and they represent strategies for living these judgements within the world" (Dirkx, 2008). Dirkx cites Solomon who says "We live our lives through emotions, and it is our emotions that give our lives meaning" (Solomon, 2007). This accords with the idea of emotions as processes, and ones that contribute to our life's narrative.

Nevertheless, it is important - if only for this thesis - to settle on a workable definition of emotion. How can we hope to consider the role of emotions if we have no conception of what emotions are? Schutz et al provide a useful conceptualisation of emotion as:

"… socially constructed, personally enacted ways of being that emerge from conscious and/or unconscious judgments regarding perceived successes at attaining goals or maintaining standards or beliefs during transactions as part of social-historical contexts."

(Schutz et al., 2006, p.344)

By "socially constructed, personally enacted", the authors contend that emotions are "relational", i.e. particular emotional experiences are brought into being by the interactions of individual and environment rather than existing as "exclusive features of a person or of an

environment" (Schutz et al., 2006, p.344). By "social-historical contexts", they mean that the emotional experience of, for example, anger "is dependent upon the particular social-historical context in which the transaction occurred", and "what may result in anger in one social-historical context may not result in anger in another context" (Schutz et al., 2006, p.347). Whilst this definition of emotion does not adequately encompass aesthetics, spirituality, pleasures, and pains, or the biological basis of emotional experiences, and nor does it explain those emotions that are themselves goals, the emphasis on social-historical contexts does reinforce the idea that emotions are experiences which are afforded to an individual by a particular environment, where each affordance has its own context in historical time and geographical place. The concept of affordances was developed initially as a concept in the study of visual perception (Gibson, 1977). Salomon provides a more general conceptualization, with affordances as "the perceived and actual properties of a thing, primarily those functional properties that determine just how the thing could possibly be used" (Salomon, 1993, p.51). We will return to affordances in section 2.2.4.

2.2.2 Emotions online

Turning to online learning, it has been suggested that this activity "requires considerable autonomy and self-direction" (Artino & Stephens, 2009, p.57) which gives an indication of the kinds of students who will thrive, or fail, in these conditions, where control for learning shifts from the teacher to the student (Hartley & Bendixen, 2001). One might speculate that this act of taking responsibility for one's own learning will evoke anxiety, and it is those students who can tolerate this anxiety, and use its energy productively, who will make best use of e-learning. We will return to this idea later.

It is vital to understand e-learning students' experiences of emotion if, as Artino & Stephens (2009) have suggested, positive student emotion contributes to more adaptive patterns of self-regulated learning, which is defined as "an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their cognition, motivation, and behavior, guided and constrained by their goals and the contextual features of the environment" (Pintrich, 2000, p.453). Without this understanding, we might expect e-learners to show poor retention rates, student performance and/or student satisfaction. Marchand and Gutierrez refer to Schutz et al's suggestion that "emotional experiences involve person-environmental transactions that exist within particular activity settings" (Schutz et al., 2006, p.345). One such setting is, of course, the internet.

There have been objections raised about the suitability of the internet for learning, from being less emotional and more impersonal (Rice & Love, 1987) to lacking in emotional

richness (e.g. lack of body language, facial expressions, and gestures) when compared to face-to-face learning (Vrasidas & Zembylas, 2003). There are also issues with the security of e-learning courses, with problems around authentication and verification of identity; these are often most acutely felt around online assessment, with the possibility of impersonation and deception. To combat this, the "security goals" of presence, identity and authentication can be sought through a number of mechanisms such as using webcams to capture images of e-learners which can be matched with authenticated photos on record (Apampa, Wills, & Argles, 2009).

With the advent of widespread computer-mediated communication, theories such as those of "social presence", "community of inquiry", "media richness" and "reduced social cues" developed and changed to take the new modes of communication into account. "Social presence" was initially conceptualized as "the salience of the other in a mediated communication and the consequent salience of their interpersonal interactions" (Short, Williams, & Christie, 1976, p.65) but updated versions of this are "the degree to which a person is perceived to be real in a mediated environment" (Russo, 2000) or "the ability of learners to project themselves socially and emotionally in a community of inquiry" (Rourke, Anderson, Garrison, & Archer, 2001, p.3). E-learning in such a community involves the interaction of three domains: cognitive presence, teaching presence and social presence (Garrison, Anderson, & Archer, 2001; Garrison & Anderson, 2003), where emotion is a defining characteristic of social presence. A fourth category, emotional presence, has recently been suggested as being integral to the Community of Inquiry (CoI) model, where emotional presence is "the outward expression of emotion, affect, and feeling by individuals and among individuals in a Community of Inquiry, as they relate to and interact with the learning technology, course content, students, and the instructor" (Cleveland-Innes & Campbell, 2012, p.283).

In "media richness theory" (Daft & Lengel, 1984), media richness is "the ability of a medium to carry information" (Trevino, Lengel, & Daft, 1987). Newberry (2001b) considered communication in online classes and classified communications media by their ability to carry feedback, multiple cues such as body language, message tailoring, and emotions. For this last category, Face-to-Face communication was rated as *high* in terms of ability to communicate emotions; Video Conferencing, Synchronous Audio and Asynchronous Audio were rated as *medium*; Text-Based Chat, E-mail and Threaded Discussion were rated as *low*. He commented:

> "Environments where participants do not feel they are recognized as individuals, or in which their input does not seem to be valued may result in a reduced motivation to participate. Because of this it is important to use richer communications media in

situations where it is desirable to have the participants more strongly identify with each other."

(Newberry, 2001a)

The theory of "reduced social cues", as delineated by Kiesler et al (1984), suggests that computer-mediated communication has the following features:

- lack of social cues
- difficulties of coordination and feedback
- de-individuation (loss of identity)
- depersonalization of partners
- conformity to computer subculture norms

This has some disinhibiting effects:

- uninhibited/deregulated/antinormative behaviour
- flaming - insults, swearing and hostile language
- expression of extreme/polar attitudes and opinions
- group polarization

and also some liberating ones:

- equalization of participation
- status equalization

(Kiesler, Siegel, & McGuire, 1984)

These findings on de-individuation were corroborated by Lea and Spears in the development of the "Social identity model of deindividuation effects (SIDE) model" (Lea & Spears, 1992).

There is ample research to suggest that the view of e-learning as isolating, distant and un-emotional is misplaced. Zembylas (2008) comments:

"emotion is hardly absent from online learning contexts… negative emotions (anger, frustration, confusion, boredom, and isolation to name a few) and positive emotions (e.g., engagement, excitement) experienced by online learners inhibit or support the process of learning".

(Zembylas, 2008a, p.71)

while Sharpe et al comment:

"It appears that being an e-learner is an emotionally charged experience, although Hara and Kling (1999) in an ethnographic study made the interesting note that students' private thoughts were often not reported in the usual course evaluations where students gave more positive responses."

(Sharpe, Benfield, Lessner, & DeCicco, 2005, p.6)

Wu and Hiltz found that enjoyment of human relations is positively related to students' perceived online learning experiences (Wu & Hiltz, 2004).

2.2.3 Ontology (*being* online)

As internet connection speeds and processing power of computers and handheld devices increase, the threshold between the offline and online worlds will continue to diminish, and in years to come, the distinction may even fall away. Some commentators suggest that the differences are already unimportant:

> "Is there a useful distinction between online and social life and the social worlds of 'real life'? Increasingly, it seems like the answer is no. The two have blended into one world: the world of real life, as people live it. It is a world that includes the use of technology to communicate, to commune, to socialize, to express, and to understand."
>
> (Kozinets, 2009, p.2)

However, there are clearly certain important differences between online and "real-life" experiences, although the nature of these differences is not often addressed:

> "on the one hand, there is an existing physical medium that supports information communication: on the other hand, around this medium, there exists a global information ether where the social reality takes place. Between the two layers there is an almost invisible connection."
>
> (Sudweeks & Simoff, 1999, p.31)

This begs several questions, including "what does a change in medium do to our ways of being?", "which mode of being are we in when we access the internet?" and even "where is our human-ness located?"

To examine online and offline being, a basic conceptualisation of "being-ness" is required. One such conceptualisation comes from Heidegger in the shape of "Dasein" - literally *being-there* (Heidegger, 1927). According to Okrent, Heidegger's notion of Dasein can be summarised as "a being of the same ontological sort that we are" (Okrent, 1988) (p. 3) whereas Poster suggests that Dasein is more akin to "culture":

> "The question of technology is not about technology per se but about modern humanity's way of being. Technology is fundamental to modern 'culture,' a term I will use for Heidegger's Dasein."
>
> (Poster, 2001, p.29)

Varisco comments:

> "the culture encountered online is indeed a kind of being 'there,' although the kind of there that does not require a physical going there. Like the telephone, wireless and television, the internet seemingly brings 'there' to where we are at, if we have the right technology."
>
> (Varisco, 2007)

Perhaps then, if being online is a distinct mode to being offline, it would be useful to speak of the experience of "being-in-the-world/online". The forward slash "/" has historically meant

"or", but is now used to separate directory and file components of a path, i.e. it is taking on the meaning of being another level of website architecture, e.g. http://www.bbc.co.uk/news meaning the news section of the http://www.bbc.co.uk/ website. In this conceptualization, being-in-the-world/online signifies that being-in-the-world is the primary experience, and being-in-the-world/online is a sub-mode of experiencing this, i.e. not "being-online-in-the-world" or "being-in-the-online-world".

A relevant issue here is the way we think and talk about being online. As I propose in a blog posting entitled "Online space - from going to being", there has been a shift from invoking the metaphor of geographical space to that of chronological time (Blackmore, 2015). We no longer feel as though we are hopping from one online space to another; instead, we dip in and out of streams of data, and our orientation to many of our online interactions now revolves around timelines.

Nevertheless, the metaphor of proximity remains the dominant one for emotional closeness. We feel "close" to others or "distant" from them (which incidentally has led to efforts to move away (!) from the term "distance learning"). Paradoxically, we may feel closer to someone who is geographically distanced from us by virtue of connections in online space than we do with someone literally close at hand. At the same time, Balick observes that "For other contacts, perhaps those that are closer in an offline capacity, online social networking can have a distancing effect, the ease of the connection preventing a deeper yet more complex and difficult engagement" (Balick, 2013, p.104).

What are the characteristics of "being-in-the-world/online"?

- it is not guaranteed to experience the physical co-presence of those it interacts with
- it lacks visual information about the other - often limited to text only - absence of the "gaze"
- it is uncertain of itself in that it receives reduced feedback from the other
- it must accept time differences - even instantaneous interactions, such as those in chatrooms, can involve delay; and often interactions are asynchronous, i.e. those posting messages and replying to them do so in the knowledge that the other may not be reading them at that moment in time
- it is not limited in its dealings with the other by its physical appearance

These factors can cause impoverishment of communication, but paradoxically they can also free up individuals to behave in ways they would not be comfortable with in a face-to-face setting; some of these freedoms are very useful in an educational context, and are implicated in some important forms of learning, e.g. deep learning, where the focus is on "what is signified" rather than on the "signs" (Marton & Säljö, 1976), and transformative

learning where learners change their meaning schemes by engaging in "critical reflection on their experiences, which in turn leads to a perspective transformation" (Mezirow, 1991, p.167).

2.2.4 Affordances

Along with ontology (our understanding of being), it is necessary to consider how this being perceives the world, and what difference it makes whether this perception takes place online or offline. Tantam states:

> "Affordance theory… is closely related to Heidegger's conception of readiness-to-hand (Heidegger, 1927), a generalization to wider learning of how a person learns to use a tool which he or she finds ready to his or her hand. One of the main applications of affordance theory has been in the field of design. A well-designed object is one that affords its use. A good door handle, for example, is one whose shape draws the hand on to it in the proper orientation to use it and also suggests to the eye the way that it should be used… Some objects afford emotions in a similar way. The soaring roof of a European cathedral draws the eye up, and has the effect of making the observer seem insignificant, but not bowed down. The postural and visual consequence is a feeling of awe, and the cathedral, like some mountains or giant trees, affords awe."
>
> (Tantam, 2003, p.37)

This description already hints at the way that some things in the world are designed to afford particular emotional experiences. A computer provides many affordances for tasks such as communication, computation and processing of information, and it may not appear to be laden with emotional possibilities, but once online via the world wide web, it becomes saturated with affordances for connecting with others. Whilst many of these seem purely functional, they all have an emotional flavour (Tantam, 2003) and so we can speak of them as being, at least in part, emotional affordances, i.e. affordances which allow transactions of an emotional nature to take place. Schutte et al define emotional functioning affordances as "the likelihood of a situation eliciting an emotion-related behaviour" (Schutte et al., 2008, p.105). Some of these processes appear counter-intuitive - students often anticipate that the "distance" in distance learning will be a barrier to intimacy; but as has been described, the form which this distance takes online often has the effect of disinhibiting, and of enabling more intimate relationships to form online than were expected.

Related to the concept of "affordance" is the idea of "action readiness" which Frijda et al define as "the individual's readiness or unreadiness to engage in interaction with the environment" (Frijda, Kuipers, & ter Schure, 1989, p.213). When considering aspects of emotional experiences, Frijda comments that, "Action readiness...gives objects, places and

locations their demand characteristics of 'to be removed' (as in anger), 'to be distanced from' (as in anxiety or fear), or 'to be united with' (as in love and joy)" (Frijda, 2005, p.478). Schutz et al comment that "within the emotional experience, action readiness—which can be thought of as a motivational tendency—emerges from social-historical and person experiences and helps to define how emotional expression should look and feel in a particular situation" (Schutz et al., 2006, p.345). Thus there is a link from the intensely personal experience of individual emotion experience to a broader socio-cultural/historical context (which includes the kind of design choices implicated in affordance theory). For a typology of affordances (Conole & Dyke, 2004), see Appendix X.

2.2.5 Neurobiology

As with any mental event, emotional processes are rooted in our biological nature. It is theoretically possible to study a mental event by examining its physiological basis (although how valuable this knowledge might be is another matter). The mechanisms believed to underlie mental processing are conductance of nerve impulses from one synapse to another, a process mediated by the action of neurotransmitter chemicals. The architecture of the brain is such that certain areas and pathways of the brain are involved in particular processes, e.g. "Affective processes are assumed to be central to emotions, and to be physiologically bound to subsystems of the limbic system (Fellous & LeDoux, 2005)" (Pekrun, 2006, p.316). The Dorsolateral Pre-Frontal Cortex is thought to guide decision-making via positive emotions (joy, pride, hope), whilst negative emotions (anger, threat, fear) show activation in the amygdala (part of the Limbic System) (Davidson, Scherer, & Goldsmith, 2003). There has been interest in the amygdala as the point where sensory signals (from the hypothalamus) are integrated, and its role in processing emotions, particularly negative ones. Indeed, there is the suggestion that negative emotions take precedence in perception over positive ones (LeDoux, 1996).

There is currently considerable interest in the use of brain imaging techniques to enhance knowledge and understanding of neurophysiology. However, there are dangers in "neuroscientism", the "promise that brain-scans (using the limited current technologies of fMRI and EEG) can explain the workings of the mind" (Poole, 2012). Typically, laboratory studies have to rely on controlled conditions, with a particular cross-section of society as participants, involved in unnatural tasks which can be done whilst being scanned. No doubt the technology will advance and it will become possible to monitor the workings of the brain in more sophisticated and naturalistic ways, allowing greater specificity of the association between mental events and brain areas and pathways. And this knowledge will be useful,

but only to a point. The complexity and plasticity of the brain suggest that it should not be viewed in a fixed way - numerous brain circuits and structures are involved in emotional states which themselves are a combination of learned (via memory) and innate responses. When considering theories linking neurotransmitters and brain structure to emotional experiences, such as Lövheim's "cube of emotion" which considers the relationship between monoamine neurotransmitters and emotions (Lövheim, 2012), Tantam reviews the evidence and notes:

> "a transmitter in one place might act differently from a transmitter in another. All of the transmitters come as families: I think that there might be 15 serotonin receptors by now, and they might act in different, sometimes antagonistic ways. But anyway, by the time that anything in the brain gets to be a conscious experience, it's been so changed that there is unlikely to be any correspondence of any interest. It's a bit like describing Rembrandt's paintings in terms of the proportions of yellow, red, and blue pigments used."
>
> (Personal communication, 2012)

Regardless of the difficulties of describing emotional experiences in terms of brain structure, we can be confident that there are strong links between emotion, learning and memory. Indeed, if we consider that emotions and mood are ever-present and constantly in flux, rather than being discrete events - "happiness", "sadness" - which we experience and then exit, then it might be that emotional experience is not possible without learning/memory, and that learning/memory always involves emotional experience. Returning to Heidegger, we are never without a mood of one sort or another (with its particular emotional profile), just as the brain is never without an admixture of neurotransmitters; this mood arises from the simple yet curious fact of our being-in-the-world, and therefore also our being-in-the-world/online.

The processes underlying the perception of emotional states are also of importance. Seth (2013) notes that it was James and Lange who in 1894 proposed that emotions arise via our ability to perceive changes in the body, and that "there is now a consensus that emotions are psychological states that encompass behavioural, experiential, and visceral changes" (Seth, 2013). He focuses on interoception - "the sense of the internal physiological condition of the body" - and suggests that "'interoceptive inference' conceives of subjective feeling states (emotions) as arising from actively-inferred generative (predictive) models of the causes of interoceptive afferents" (Seth, 2013, p.565) In other words, our emotions arise from an active process of monitoring the extent to which sensory data are in line with predictions of how we should be feeling based on internal bodily states, where the comparator is located in the anterior insular cortex area of the brain. Although in terms of physical co-presence, e-learning may be taking place in a disembodied mode, the emotions an e-learner experiences come to conscious awareness through embodied processes in response to sensory data. In fact, emotions are by their nature always embodied

experiences, regardless of the extent to which they rely on co-presence for detection or response. This has some relevance for the practice of psychotherapy, where the therapist is concerned to detect and respond appropriately to emotions in the client which the client may not necessarily be aware of. Whether emotions can be considered "unconscious" is a contentious issue, but beyond the scope of this thesis.

2.2.6 Emotions in learning and teaching

In keeping with Cartesian dualism which has viewed mind and body (and thus reason and feeling) as separate (Alsop & Watts, 2003), emotions have been characterized as irrational urges which only serve to interrupt the rational pursuit of truth (Jaggar, 1989) or as the workings of an "inner chimp" which need to be restrained in order to maximise performance (Peters, 2012). As O'Regan noted earlier, many theories of emotion in learning view emotion and cognition as separate systems operating quite independently from one other (Zajonc, 2000), or even in competition, with the brain at the epicentre (Goleman, 1995). However, this division is not universally accepted - Lazarus considers cognition and emotion to be "more or less fictions of scientific analysis, whose independence doesn't truly exist in nature" (Lazarus, 1999, p.3). Indeed, the affective domain:

> "is central to every part of the learning and evaluation process. . . It provides the bridge between the stimulus and the cognitive and the psychomotor aspects of an individual's personality."

(Eiss & Harbeck, 1969, p.4)

Regardless of mechanism, the affective domain does have the ability to commandeer brain resources, and influence brain function and bodily behaviour in apparently less than (cognitively) logical ways, such as the person experiencing a phobic reaction to a snail, despite its lack of tangible threat to the organism's physical integrity; presumably it is the psychological experience which is so aversive as to produce "fight or flight" behaviour, and impulses which are resistant to "normal" modes of learning from experience. This points towards an important distinction between learning whereby organisms associate between stimuli (akin to conditioning), and learning whereby organisms acquire sensory information and organise it according to pre-existing cognitive schema. Whilst there may be an element of conditioning in how e-learners behave online, such as becoming accustomed to the small rewards obtained from clicking on a hyperlink and arriving at a new page, it is the process of acquiring and integrating theoretical information, and the emotions associated with it, that is the primary concern in this thesis.

Whatever the exact nature of the relationship between emotion and cognition, there is considerable interest in the interaction of the two, and in particular the influence of emotion on memory and attention which are both considered to be vital cognitive components of

learning (Wolfe, 2006). Staus suggests that "it is widely accepted that emotional arousal increases the recall of associated events and promotes attention to a central cue or stimulus (Easterbrook, 1959; Lang, Bradley, & Cuthbert, 1990)" (Staus, 2012, p.20) although "several researchers have noted that intense arousal can actually limit one's capacity for information processing by consuming attentional resources (Easterbrook, 1959; Lang, 2000)" (Staus, 2012, p. 21). Support for this idea comes from Zillmann (1990), Anderson & Phelps (2001) and Lang, Zhou, Schwartz, Bolls, & Potter (2000). Indeed, it seems probable that certain potent emotional experiences, such as humiliation and shame, will decrease memory and learning performance, as in children with histories of abuse or who are diagnosed with post-traumatic stress disorder (Samuelson, 2011; Yasik, Saigh, Oberfield, & Halamandaris, 2007). Attention enables learners to decide which bits of information need to be processed, and from information-processing models, there are various automatic selection mechanisms which govern this activity, such as the "orienting response" which relates to sensory perception of stimuli (Ohman, 1979). Long-term learning is thought to require more than these automatic processes - sustained attention is needed so information can be further processed into long-term memory (Lang, Zhou, Schwartz, Bolls, & Potter, 2000). It appears that emotional stimuli are more effectively put into storage, perhaps by virtue of automatically demanding additional processing resources for storage (Bradley, Geenwald, Petry, & Lang, 1992; Lang et al., 2000). Information in long-term memory may also undergo voluntary and controlled processing, if it is perceived as being important for meeting certain goals (Compton, 2003; Lang et al., 2000), and thus where people are motivated to engage in emotional situations, this may even lead to enhanced storage of information (Nabi, 1999).

What is the impact of intense emotional arousal on learning? Many processing models include the idea that there are limits to capacity, and that people are limited in the information processing resources they can dedicate to a task at any one time. If emotional cues consume attentional resources, then when arousal levels are high, recall of events may be poor, even though attention levels are high. The implications for learning are that arousal is needed for learning (i.e. for information to be processed and dedicated to memory), and that motivation (not surprisingly) increases the likelihood of learning. However, when arousal levels go above a certain level, learning processes are inhibited. This idea contributes to a commonly held belief in the literature that the performance of cognitive activities is adversely affected by negative emotions, but is raised by positive emotions (Izard, 1984); these views are indicated in some of the graphical representations of emotion and learning in 2 dimensions (see Appendix VI). The inference is that positive emotions/moods are facilitative of learning, whilst negative ones are barriers, e.g.:

"Research (Isen, 2000) also demonstrates that a slight positive mood does not just make you feel a little better but also induces a different kind of thinking, characterized by a tendency towards greater creativity and flexibility in problem solving, as well as more efficiency and thoroughness in decision making".

(Shen, Wang, & Shen, 2009, p.176)

Looking at perceptions of positive emotions in learning amongst University students and lecturers, Rowe et al found themes associated with five positive emotions, namely joy/happiness, interest/excitement, love, pride and relief (Rowe, Fitness, & Wood, 2013). In contrast to this, there is evidence that negative emotions, such as frustration, can inhibit the learning process (Tyson, Linnenbrink-Garcia, & Hill, 2009) but conceptualizations of emotions as "positive" and "negative" may be unhelpful, and Finch et al's findings from 2015 "challenge the position that negative emotion is inherently a liability" (Finch, Peacock, Lazdowski, & Hwang, 2015, p.32). They suggest that a negative emotion such as frustration can lead to disengagement, or it can be transformed into motivation and perseverance; they comment, "the ability to regulate negative emotions experienced when working with others, can neither be taught from a textbook or through traditional assessment mechanisms" (Finch, Peacock, Lazdowski, & Hwang, 2015, p.33). This relates to a mastery goal-orientation, which enables higher performance than performance goal-oriented students who may seem more emotionally positive, but who are less able to regulate negative emotional experiences.

In line with this, an emotion of particular interest to this thesis (and one usually classed as negative) is anxiety. "It is known that learning and anxiety are linked via an interesting association where an optimal level of arousal tends to boost learning, as observed in the Yerkes-Dodson Law (Yerkes & Dodson, 1908) and derivatives" (Cornachione, 2009, p. 68). Figure 5 shows the Yerkes-Dodson law as adopted by Hebb – from Teigen (1994):
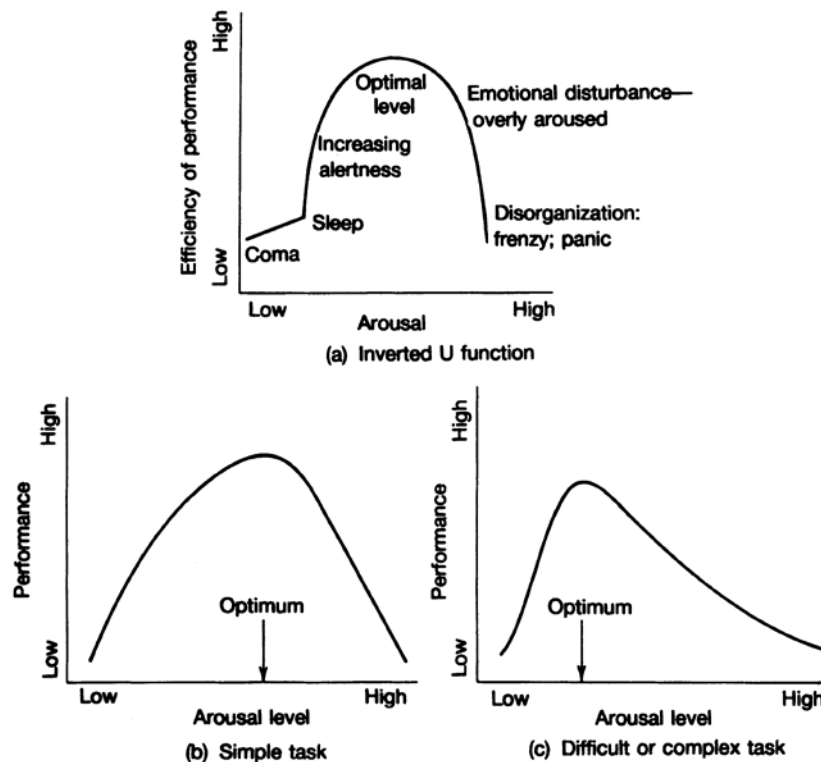
FIGURE 3. Illustrative example of the Hebb/Yerkes–Dodson hybrid.
Source: From *Motivation: Biosocial approaches* (p. 126) by S.B. Klein,
1982, New York: McGraw-Hill. Copyright © 1982 by McGraw-Hill.
Reprinted by permission.

Figure 5 – The Yerkes-Dodson law

An individual will attempt to reach an optimal level of arousal by reducing or increasing their arousal level. Anxiety shows a consistent connection with fear, and is often regarded as antithetical to learning, as it leads to a kind of tunnel vision where the subject can only focus on the source of the threat, with associated unwanted effects for learning (Cornachione, 2009, p. 70. However, other conceptualizations of anxiety see it as an essential component of motivation - feelings of fear and threat are believed by some to be intrinsic experiences in learning (Merriam & Heuer, 2006). And students may need a level of anxiety about a task to motivate them to engage fully with it. In a more general sense, anxiety is an integral aspect of the experience of being human - speaking of what we would now call "existential anxiety", Kierkegaard goes so far as to say "Whoever has learned to be anxious in the right way has learned the ultimate" (Kierkegaard, 1981). Kierkegaard's proclamation suggests that there may be an optimal level of anxiety which is conducive to good living, and the same appears to be true for learning. Speaking about student outcomes, Marchand and Gutierrez comment:

> "Too little or too much anxiety is likely to debilitate action (Tyson et al., 2009).
> Thus, findings suggesting that high anxiety is related to low performance may be
> on the declining side of the inverted U and findings suggesting a positive
> relationship would be on the facilitative side of the U. Therefore, although anxiety

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is typically considered a negative, activating emotion, there may be situations when anxiety facilitates positive action".

<div align="right">(Marchand & Gutierrez, 2012, p.9)</div>

In qualitative interviews with students, O'Regan found the most common emotions experienced online in relation to their studies to be: frustration, fear, anxiety, apprehension, shame/embarrassment, enthusiasm/excitement and pride (O'Regan, 2003, p.84-88). Astleitner found that the majority of emotions reported by teachers were related to anger, fear, sympathy, envy, and pleasure (in that order). Teachers rated anger, fear and sympathy (in that order) as being the most important types of emotions in instruction, whereas students rated fear, pleasure, and anger (in that order) (Astleitner, 2000).

There are certain characteristics of e-learning which impact upon the emotional transactions which take place. Zembylas notes the research showing that a key advantage of text-based, asynchronous online communication is "the time it allows for reflection, thoughtful interaction, and the possibility for refining before posting one's contribution... this opportunity can be either liberating or intimidating, or both, because online comments are written and thus tend to carry greater gravity than normal speech (Benfield, 2000)" (Zembylas, 2008b, p.64). He also notes concerns over "whether the emotional aspects of communication that are paramount in face-to-face learning will carry over into the online environment given the absence of nonverbal cues such as facial expression, gestures, and body posture" (Zembylas, 2008b, p.64). The reliance of e-learning in written rather than spoken communication may have a bearing on how students engage, and students are likely to have different abilities and preferences for how they process information. When considering learners' orientation towards learning - their "learning dispositions" - Buckingham Shum and Deakin Crick invoke the concept of "learning power", which lists seven dimensions which harness "the power to learn" (Buckingham Shum & Deakin Crick, 2012, p.95):

- Changing & learning
- Critical curiosity
- Meaning making
- Dependence and fragility
- Creativity
- Learning relationships
- Strategic awareness

Some of these categories will intuitively involve greater activation of emotions than others. These dispositions should not be confused with the more concrete "learning styles"- the interest in learning styles as mechanisms to explain student performance has waned since the research has shown little support for their existence (Coffield, Moseley, Hall, & Ecclestone, 2004; Pashler, McDaniel, Rohrer, & Bjork, 2009; Riener & Willingham, 2010)

and whilst there is research considering the application of learning styles to e-learning (Manochehr, 2006), there is no reliable evidence base to support the idea that some learning styles are more suitable for e-learning than others, or indeed that the emotional "flavour" of an e-learning experience has a relation to learning styles.

Reinhard Pekrun's "control-value" theory of achievement emotions "provides an integrative framework for analyzing the antecedents and effects of emotions experienced in achievement and academic settings" (Pekrun, 2006). It focuses on activity-related emotions (enjoyment, frustration, boredom) as well as outcome emotions (joy, hope, pride, anxiety, hopelessness, shame and anger). Research by Artino and Jones (2012) explored the relations between several discrete achievement-related emotions (boredom, frustration, and enjoyment) and self-regulated learning behaviors (elaboration and metacognition) in an online course. They found that enjoyment (a positive activating emotion), was a positive predictor of elaboration and metacognition; and frustration, a negative activating emotion, was a positive predictor of metacognition (Artino & Jones, 2012). Tempelaar and colleagues considered enjoyment, anxiety, hopelessness and boredom, and reported similar findings in terms of their effect on students' preferences for online learning (Tempelaar, Niculescu, Rienties, Gijselaers, & Giesbers, 2012). A paper by Kahu and colleagues consider how emotions and engagement are linked, in the case of mature e-learners making the transition to university (Kahu, Stephens, Leach, & Zepke, 2014). They conclude that student emotions are where university factors (course design, student variables such as motivation and background) intersect. Furthermore, there is a complex, reciprocal flow of influence between emotions, engagement and learning which can lead to what is considered ideal engagement or to disengagement and withdrawal (Kahu, Stephens, Leach, & Zepke, 2014).

A number of researchers have considered the potential drawbacks of online study. For example, "confusion, frustration, boredom, flow/ engagement, interest and being stuck" have an enduring impact on learning (Graesser, McDaniel, Chipman, Witherspoon, & D'Mello, 2006) whilst unclear course objectives and a lack of prompt, clear communication via email by tutors lead to confusion, anxiety, distress and frustration (Hara & Kling, 2000). However, student motivation can be maintained even when feeling "stuck" or fearful (Burleson & Picard, 2004).

What effect does disembodiment have on emotions in learning? The literature identified in this thesis did not seem to pick up on disembodiment as an important factor. It appears now to be taken for granted that users of the internet can negotiate the transition between "online" and "offline" worlds, and that the two media do not bring about significant differences in being. Whilst it seems to be the case that the much-vaunted changes to consciousness brought about by the possibilities of disembodiment have not come to pass (Muri, 2003),

there are a number of ways in which lack of physical co-presence does seem to alter human behaviour. For example, one facet of the experience of being online is the absence of what Sartre terms "the look". Tantam describes this as "feeling the scrutiny of others and being influenced by the awareness of how what one does looks to them" (Tantam, 2006, p.373). Paradis discusses the pedagogical significance of "the look" (Paradis, n.d.), but Tantam applies this to the online context by stating that "The absence of the look may enable a person to talk about their problems to another person on the internet although they would feel too ashamed to talk in the flesh" (Tantam, 2006, p.373). Invisibility/ lack of eye contact may have a negative effect on participants' ability to understand one another, and conflicts due to misunderstandings (lack of contextualising non-verbal information) are not only more common online, but harder to clear up online without the reassurances provided by language (Munro, 2012). Balick (2013) notes that, "unlike with online relating, interpersonal cues in offline relationships provide a context in which a lean towards intersubjectivity is encouraged (Balick, 2013, p.102). "The look" induces self-consciousness and the possibility of shame, but "the absence of a normal level of shame may be one factor that leads to the disinhibition (Suler, 2004) that is characteristic of internet users" (Tantam, 2006, p.373). Suler refers to at least six factors that contribute to disinhibition:

- Dissociative anonymity - "You Don't Know Me"
- Invisibility - "You Can't See Me"
- Asynchronicity - "See You Later"
- Solipsistic introjection - "It's All in My Head"
- Dissociative imagination - "It's Just a Game"
- Minimizing authority - "We're Equals"

(Suler, 2004)

Turkle illustrates these dynamics in the following observation:

> "at a screen, you feel protected and less burdened by expectations. And, although you are alone, the potential for almost instantaneous contact gives an encouraging feeling of already being together. In this curious relational space, even sophisticated users who know that electronic communications can be saved, shared, and show up in court, succumb to its illusion of privacy. Alone with your thoughts, yet in contact with an almost tangible fantasy of the other, you feel free to play. At the screen, you have a chance to write yourself into the person you want to be and to imagine others as you wish to them to be, constructing them for your purposes. It is a seductive but dangerous habit of mind."

(Turkle, 2011, p.188)

Such disinhibition presents challenges to teachers and students, but it also presents opportunities (Cunningham, 2011) in enabling students to discuss difficult or personal issues, and in encouraging the forging of deep relationships online (van Deurzen et al., 2006).

The idea of how we enter into the minds of others online warrants some consideration. Discussing intersubjectivity and social networks, Balick observes, "By going into an online social environment, the individual is seeking to be in the mind of the other" (Balick, 2013, p.102) but that these "imagined audiences" (boyd & Ellison, 2007) are "not just imagined, and neither are they simply just *real,* they are, in fact, situated within the minds of others before they are mediated by the online social network" (Balick, 2013, p.103). He goes on to describe how online, an individual may "experience a fantasy of omnipotent control" because of the mediated nature of interpersonal feedback, but "in reality, the subject is *less omnipotent than even before* because her presence online happens instantaneously and is witnessed by many at the very second it occurs" (Balick, 2013, p.103). So there may not be "the look" but there is a different kind of visibility, and this brings its own anxiety, an issue we will come back to in due course.

Where are these emotions directed? The student potentially has an emotional inter-relationship with all agents and facets of their learning experience, including but not restricted to this audience, so their emotions can be considered as being directed towards different targets. When considering effective educational interventions, Wosnitza and Volet observe that "a different form of intervention is required depending on whether emotions are directed towards the task, the technology, the self or other people" (Wosnitza & Volet, 2005, p.455). The task could be considered to include issues, ideas and concepts (presented in the course materials and by other students or tutors) while the technology could be considered to include online resources (e.g. the virtual learning environment, discussion forum, chatroom, webpages, course materials and other web-based information), as well as the internet itself, which has its own emotional flavour.

Whilst individuals experience emotions primarily as private experiences, there is also the potential for groups to experience emotions. Smith et al note that according to "Intergroup emotions theory… intergroup emotions are experienced by individuals when they identify with a social group, making the group part of the psychological self" (Smith, Seger, & Mackie, 2007, p.431). They propose that group-level emotions are meaningful, coherent, and functional. The stages of group development may also be important determinants of how emotions are experienced in the group, and how they are expressed. Using the schema proposed by Tuckman, a group will go through the development stages: forming, norming, storming and performing (Tuckman, 1965). In relation to this theory, Johnson et al studied the development of an e-learning group, and found "rapid movement between each stage with almost no evidence of the storming stage", perhaps because of "the short amount of time that each team had to accomplish assignments (about 2 weeks per assignment)" (Johnson, Suriya, Won Yoon, Berrett, & La Fleur, 2002, p.385). They therefore propose an

iterative model consisting of three stages: (1) forming, (2) norming, and (3) performing; when conflict arose among team members, they would resolve the conflict and continue with the process of forming, norming, and performing.

The way that groups are able to manage their emotions (individually and collectively) is an important factor in students' ability to learn. In undergraduates, Xu and colleagues found that emotion management was positively associated with feedback and learning-oriented reasons at the group level; at the student level, emotion management was positively related to monitoring motivation, learning-oriented reasons, feedback, peer-oriented reasons, arranging the environment, and the number of previous online courses (Xu, Du, & Fan, 2014). Back in the mid-1980s, Brookefield viewed the adult discussion group as something akin to a psychodynamic battleground (Brookfield, 1986).

Curşeu and colleagues considered the impact of individual demographics on the performance of groups, with a focus on collective emotional intelligence (CEI), which is defined as "the ability of a group to develop a set of norms that encourage expression, awareness, and regulation of the affective dynamics within the group, improving the ability of group members to work together effectively (Druskat & Wolff, 2001)" (Curşeu, Pluut, Boroş, & Meslec, 2014, p.1). They found that in learning groups, an increased percentage of women fosters the emergence of CEI, and this in turn encourages social integration within groups (increased group cohesion, reduced relationship conflict) and affective similarity (Curşeu, Pluut, Boroş, & Meslec, 2014). So the end result of higher percentages of women is higher levels of group effectiveness. The research was carried out with reference to face-to-face learning groups, so replication of this research in online learning groups would be interesting. And it should be noted that "emotional intelligence" is a contested term, with common criticisms being that EI is not really a distinct type of intelligence, but intelligence as it applies to the domain of emotions (Locke, 2015).

A landmark publication from Rienties and Rivers provides a literature review of more than 100 studies, identifying about 100 different emotions with demonstrable impact on learners' attitudes, behaviours and cognition (Rienties & Rivers, 2014). This review was picked up latterly by the "low-hanging fruit" method, as it was published after the initial searches were made for the literature review. Significantly, it includes just 3 of the 32 studies which were included in the final dataset for this thesis. And given that the Rienties and Rivers article identifies around 100 studies, and the search strategy for this thesis identified 32, there were obviously a significant number of papers which this search strategy had not managed to identify when undertaken in 2012. The Rienties and Rivers article does not detail the search strategy, so it is not clear how it differed from the one undertaken for this thesis. The timeframes account for many of the results not included - systematic searches for this thesis

were undertaken in April 2012, whilst many of the results from Rienties and Rivers' study were published after that date. And the majority of articles included in Rienties and Rivers' study were subsequently included in this thesis via later reading and "low-hanging fruit" searches. There were a small number of articles which were not picked up by the search strategy used for this thesis, which serves to demonstrate that such search strategies are not fool-proof, and are unlikely to pick up 100% of the relevant research.

Rienties and Rivers' review used Garrison's (2011) CoI framework to focus on the role of emotional presence in blended and online learning. It then reviewed seven methods for measuring emotion, including self-report questionnaire measures, linguistic analysis software approaches and physiological measures, and considered the benefits and challenges of using a learning analytics approach to measuring emotions. Of the themes considered in the qualitative analysis part of this thesis:

1. Anxiety
2. Engagement with content/process
3. Connectedness
4. Existential challenge
5. Fun/humour
6. Emotional disclosure
7. Shame
8. Isolation
9. Regret/sadness
10. Frustration/anger
11. Satisfaction/pride

there were studies identified in the Rienties and Rivers study associated with *anxiety*, *connectedness* (belonging), *humour*, *shame* (embarrassment), *sadness*, both *frustration* and *anger* (separately) and both *satisfaction* and *pride* (separately). Themes not covered in the Rienties and Rivers review were *engagement*, *existential challenge*, *emotional disclosure* and *isolation*.

Finally, we should mention emotions associated with teaching. Bennett (2014) describes the emotional journey associated with "changing one's teaching and learning practices and how this constitutes emotional work" (Bennett, 2014, p.919). There are connections here to the concept of "emotional labour" (Hochschild, 1983) whereby emotions are regulated to create appropriate facial and bodily displays of emotion within the workplace. Online, tutors must deliberately and clearly signal to students an array of emotions appropriate to particular interactions and exchanges; whilst it may be easier to conceal any unwanted embodied emotional reactions, more work may be needed when it comes to accurately conveying the

desired emotional tone through linguistic means alone. As was evident from the background section, the various e-learning partnerships comprised staff of different levels of experience, but very few had taught online before, and for some, the notion of collaborative learning was a new one. Added to this, there was the process of adopting new technological tools and practices in their teaching, which challenged existing ways of working, opened up new possibilities, presented new problems and solutions. Bennett's research suggests that the challenges of adopting new learning technologies can be so extreme that "even the most committed advocates of online teaching practices may consider giving up and reverting to traditional ways of teaching" (Bennett, 2014, p.919). Strategies for managing the (negative emotions) included putting more time into preparation, acknowledging and working through the challenge, and building a sense of shared journey, with the students, into a technological "new world" (Bennett, 2014, p.929). This suggests that future research could usefully focus more closely on tutor experience.

2.2.7 Collaborative learning

A significant strand in the research was related to "collaborative learning" (CL). Jones and Issroff (2005, p. 306) note the difficulties associated with defining this term, and within this research, a number of different types of collaborative learning were taking place, sometimes simultaneously. Firstly, there is a general sense in which students were working together by discussing the same course materials and responding to the same prompts with posts about personal experience in discussion forums and chatrooms, taking on board one anothers' ideas, and being open to change. In this way, they were engaging in "An instruction method in which students work in groups toward a common academic goal" (Gokhale, 1995). However, there was variation within the learning community in the extent to which students engaged in collaborative thought, discussion and learning – some students approached their studies in a very collaborative way, whilst others were more individualistic and focused on communicating their own ideas.

There were also elements of the course where a tighter definition of CL was appropriate. So the minimum participation requirements were that students needed to post at least three times per week to the discussion forum, and attend the weekly chatroom (both for a minimum of 8 out of 10 weeks). Students were encouraged to write their essays in a collaborative manner, although interestingly, very few ever took up this opportunity, and the majority wrote their essays in isolation, albeit with reference to forum and chatroom work. For the two shorter modules, "Ethics in Counselling and Psychotherapy" and "Cultural Competence in Counselling and Psychotherapy", the assessments implemented by Sheffield

and NSPC were explicitly collaborative, e.g. for the former, students had to discuss three case studies of possible ethical infractions in the forum throughout the module, then convene in the chatroom for a synchronous online "ethics panel" where they had to decide jointly on a course of action, arguing for their chosen verdict. Both the live chatroom session and the discussion forums were assessed, along with a written summary of each student's position, and within the assessment, credits were given (or withheld) according to the extent to which students worked collaboratively. So in these examples, the definition of CL utilised was much more aligned with those commonly used in the field of CSCL, some of which emphasize the emotional aspects of the learning process, e.g. it has been noted that in collaborative learning, "the group members regulate their motivation, emotions, and cognition together, through shared responsibility for the learning task requirements" (Järvenoja & Järvelä, 2009). As Eligio suggests, collaborative learning involves people co-constructing knowledge to solve a joint problem, thereby thinking about their own perspectives, their joint activity and constantly updating their "representation" of each other's perspectives (Eligio, 2010). He goes on to suggest that "mentalization" during collaborative learning enables the creation of a shared understanding of learners' knowledge, and that this also carries "a powerful affective tone". States of shared understanding seem, for the most part, to be naturally enjoyable to humans, so the usual affective states associated with collaborative learning are positive ones. There have been some attempts to investigate particular affective states associated with online collaborative learning, e.g. Capdeferro and Romero's research on frustration (Capdeferro & Romero, 2012). Eligio describes four general mechanisms underlying the understanding of others' emotions - emotional contagion, affective perspective taking, empathy and sympathy. However, whilst collaborative learning does seem to involve significant emotional processing, there is currently no consensus on the range of emotional experience afforded by specifically *collaborative* online learning, and this is one of the themes explored in the qualitative interviews presented later in this thesis.

An argument can be made that because different kinds of "collaborative learning" are taking place on different modules, or on the same module by different students, another term should be used, and indeed the learning could also be described as "networked learning", namely "learning in which information and communication technology (C&IT) is used to promote connections: between one learner and other learners, between learners and tutors; between a learning community and its learning resources" (Jones & Steeples, 2002, p.2). In fact, given that networked learning is usually understood to be a form of CSCL where remote rather than F2F interactions are the norm, networked learning is perhaps the most appropriate term. However, given that during the project, discussions with research partners were oriented around the term "collaborative learning", that is the term that will be used for

the majority of this thesis, on the understanding that this is in reality networked learning taking place exclusively online. Indeed, CL was the pedagogical approach explicitly adopted by the CEP Co-ordinators who originally implemented the e-learning course which the CEP project was based on.

2.2.8 Transformative learning

Another type of learning associated with emotional processes is "transformative learning" (TL) which is "a deep shift in perspective during which habits of mind become more open, more permeable, and better justified (Cranton, 2006; Mezirow, 2000)" (Cranton, 2012, p.55). Mezirow characterized TL as coming through a process of critical self-reflection, prompted by "encountering a perspective that is at odds with the prevailing perspective" (ibid). Once previously held beliefs are re-examined, a shift in perspective may occur, with associated changes in actions, and this is a sign that TL has taken place. Mezirow focuses on critical (self-)reflection as being a pre-condition for TL whereas others such as Dirkx (2001) put greater emphasis on the role of emotion, intuition and imagination. Whilst the disorienting dilemmas which promote TL commonly arise from life crises/transitions, the teacher can engineer the kinds of predicaments which lead to this kind of learning, and that was the case in the current research, whereby the questions which students were asked to respond to in the discussion forums were the basis for instigating the processes which lead eventually to TL; from the current research, it appears that the constitution of the tutorial group was also a key factor (see section 5.3).

2.2.9 Learning outcomes in psychotherapy education

To understand the role of emotion in psychotherapy e-learning, it is necessary to consider what the learning outcomes for psychotherapy/ psychological therapy education say about emotional processing.

What is learning? Among the plethora of possible definitions, all comprising a sense of acquiring new (or modifying existing) information, knowledge, skills, etc., the verb "to learn" has etymological links back to the proto-Germanic term *liznojan*, meaning "to follow or to find a track" (Harris, 2012). She continues:

> "The walking of paths is… an education, and symbolic, too, of the very process by which we learn things: testing, wandering about a bit, hitting our stride, looking ahead and behind. That is the rhythm of learning in all kinds of disciplines and ways of life."

> (Harris, 2012)

Given the origins of the word, one possible definition of learning is "finding a track to knowledge", where knowledge encompasses all imaginable kinds of information that humans find to be of *use* or *value* - facts, affective states, behaviors, skills, values, preferences. It follows that collaborative learning might be more generally described as "finding a track to knowledge with others". In the context of psychotherapy, one might imagine that learning is "finding a track to knowledge about human relationships", and includes fact-based learning (e.g. which theories of human nature are relevant to psychotherapy), skill-based/procedural learning (e.g. how to work safely and effectively as a psychotherapist), affect-based learning (e.g. how to be with a grieving client when one is reminded of one's own painful loss), and many more besides.

There are no global learning outcomes for psychotherapy education or training, in part because of the varied nature of therapeutic work. However, the World Council for Psychotherapy (WCP, 2012) and various continental Associations of Psychotherapy do publish general statements, e.g. the European Association for Psychotherapy publishes its own guidelines about psychotherapy learning and training in the form of the European Certificate for Psychotherapy (ECP) which includes the following requirements for psychotherapy training:

> 4.2.2. Theoretical study during the 4 years of training specific to psychotherapy should include the following elements:
> - Theories of human development throughout the life-cycle
> - An understanding of other psychotherapeutic approaches
> - A theory of change
> - An understanding of social and cultural issues in relation to psychotherapy
> - Theories of psychopathology
> - Theories of assessment and intervention
>
> (EAP, 2009)

More recently, the Increasing Access to Psychological Therapies (IAPT) project in the UK has developed the ten "Essential Shared Capabilities" (ESC):

> "The ESC should form part of the basic building blocks for all staff who work in mental health whether they are professionally qualified or not or whether they work in the NHS, the social care field or the private and voluntary sectors. The ESCs are also likely to have value for all staff who work in services that have contact with people with mental health problems."
> (Department of Health/NHSU/The Sainsbury Centre for Mental Health/National Institute for Mental Health, 2004)

The 10 ESCs are:

1. Working in Partnership
2. Respecting Diversity
3. Practicing Ethically

4. Challenging Inequality
5. Promoting Recovery
6. Identifying People's Needs and Strengths
7. Providing Service User Centred Care
8. Making a Difference
9. Promoting Safety and Positive Risk Taking
10. Personal Development and Learning

<div align="center">(NHSU, 2012)</div>

The United Kingdom Council for Psychotherapy (UKCP) refers to necessary entry requirements. Under "The Minimum Curriculum - Theory and practice", the study of the theory and practice of psychotherapy from assessment to ending should include:

a) A model of the person and mind
b) A model of gendered and culturally influenced human development
c) A model of human change and ways in which change can be facilitated
d) A set of clinical concepts to relate theory to practice
e) An extensive literature which includes a critique of the model
f) Awareness of safeguarding issues in relation to clients and those likely to be impacted by their actions

<div align="center">(UKCP, 2012)</div>

So there is some indication of the type of emotional experience expected of students being admitted onto programmes, and the learning they will be exposed to during their training. However, more precise details of this learning are not provided - it is each training institute's responsibility to interpret and implement these learning outcomes as they see fit.

It is important to note that the MSc in Psychotherapy Studies, as delivered at the University of Sheffield, was not a psychotherapy training programme, and so students were not being selected on this basis. The majority of students recruited to the University of Sheffield were either already practising therapists, or were taking the course for lifelong learning/self-development, and had no particular interest in training to be a practising therapist. Therefore there was no expectation on any of the partners to use learning outcomes similar to those of a psychotherapy training programme, although inevitably, many of the same elements were present. Other partners differed in the way the e-learning was integrated into degree programmes, and on the type of students who were recruited - see table 11 for further details. However, there were also some similarities in approach beyond those dictated by the architecture of the VLE - during the CEP project, there was frequent discussion at partner meetings of the way that the Co-ordinator and pre-existing partners had implemented the programme, namely using a collaborative learning approach and encouraging students to reflect on theory in the light of personal experience.

2.3 Narrative summary - methods for measuring emotions

Preliminary searches on "measuring" or "detecting" emotion suggested that the evidence base would be small. Given that the previous search had identified literature on emotions and e-learning, it was not deemed necessary to conduct a new full systematic search into the topic of measuring emotion, so a combined approach was adopted, which comprised:

1) Searches via Mendeley within the previous literature review results with added keywords ("measuring" and "detection" of emotion)
2) Searches of the literature review results for articles and references including methods for measuring emotion
3) Further "low-hanging fruit" searches using *Google scholar*, and examining reference lists.

In retrospect, it is possible that more synonyms such as "identif$" and "analys$" should have been used as these may have also picked up relevant materials, and avoided any undue narrowing of the Mendeley searches.

The final category is sometimes referred to as "Snowballing" and it involves reference tracking - scanning the reference lists of full text papers and using judgment to decide whether to pursue these further. Research suggests that "snowballing" methods are "especially powerful for identifying high quality sources in obscure locations" (Greenhalgh & Peacock, 2005, p.1065); in their study on the effectiveness and efficiency of search methods in systematic reviews of complex evidence:

> "only 30% of sources were obtained from the protocol defined at the outset of the study (that is, from the database and hand searches). Fifty one per cent were identified by "snowballing" (such as pursuing references of references), and 24% by personal knowledge or personal contacts".

(Greenhalgh & Peacock, 2005, p. 1064)

From the table in Appendix VII, the methods for measuring or detecting emotions appear to fall broadly into four categories:

- self-report questionnaires, e.g. Achievement Emotions Questionnaire (AEQ), Higher Education Emotions scale
- linguistic analysis software approaches, such as the LIWC
- physiological measures, e.g. pulse rate, electrodermal activity
- facial recognition

Notably, there are few examples of purely qualitative approaches to this issue, perhaps because of the allure of automated methods in working with large data sets gathered online. It appears that self-report remains an important method in this field. Feidakis et al comment:

> "Self-reporting is the only way to measure the user's subjective feelings, their inner perceptions, and although lacking in subjectivity, it is still an easy, inexpensive, and rapid way to evaluate affective states. Literature offers various instruments to evaluate not only student's emotions (with the Achievement Emotions Questionnaire-AEQ… for example), but also their emotion intelligence (e.g. SEL Tools…).
>
> (Feidakis et al., 2011, p.71)

However, Pekrun notes the following disadvantages of self-report:

> "Self-report cannot render real-time estimates of emotional processes, and self-report measures are difficult to construct so that they render interval or ratio scales that accurately capture more complex, non-linear relationships. Furthermore, self-report may be subject to response biases, and is not well suited to assess emotional processes that have limited access to consciousness. By implication, behavioural and neuropsychological measures may be needed as well."
>
> (Pekrun, 2006, p.331)

Manago et al conducted a study on the relationships between College Students' Facebook networks, and their communication and well-being (Manago, Taylor, & Greenfield, 2012). They collected data on various aspects of participants' Facebook networks, e.g. network size, categories of friends and status updates. Other measures selected were:

- Life satisfaction - Student's Life Satisfaction Scale (Huebner, 1991) (adapted to assess global life satisfaction)
- Self-Esteem - Rosenberg Self-Esteem Scale (Rosenberg, 1965)
- Perceived online social support - a measure of perceived online social support was adapted from the interpersonal support evaluation list (Cohen & Hoberman, 1983)

Manago et al conclude that:

> "The major function of status updates was emotional disclosure, the key feature of intimacy. This finding indicates the transformation of the nature of intimacy in the environment of a social network site. In addition, larger networks and larger estimated audiences predicted higher levels of life satisfaction and perceived social support on Facebook".
>
> (Manago et al., 2012, p.1)

Research by Steers et al has focused on the kinds of social comparisons which Facebook users make when viewing others' profiles. Their research concludes that people are more likely to feel depressed after spending lots of time on Facebook where they are likely to compare themselves unfavourably to others (Steers & Wickham, 2014). This concurs with other research suggesting that Facebook users tend to portray themselves as happier than they really are (Jordan et al., 2011) and perceive others as being happier than themselves (Chou & Edge, 2012).

A couple of studies have investigated levels of happiness from linguistic analyses of various sources, including blogs and twitter postings (Dodds & Danforth, 2009; Dodds, Harris, Kloumann, Bliss, & Danforth, 2011). And Abe (2011) investigated the role of positive emotions and emotional intelligence in experiential learning by analysing students' field practicum journals with the LIWC (Abe, 2011). Emotional intelligence (EI) was measured using the Mayer–Salovey–Caruso Emotional Intelligence Test (MSCEIT), and supervisors and students completed rating scales - the supervisors' rating scale assessed students' performance in several major domains, whilst the students' rating scale assessed perceived personal and professional benefits associated with practicum experiences. The study found that positive emotion words were robustly associated with almost all dimensions of supervisors' ratings of students' performance, but showed weak associations with students' ratings of perceived benefits associated with their practicum experiences. Overall EI scores were correlated with several of the supervisor rating items and the Facilitating Thought and Managing Emotions subscales of the EI were robustly correlated with many of the student rating items. This study thus yielded a more differentiated view of the role of positive emotions and emotional intelligence in adaptive functioning and underscored the importance of using multiple informants to assess a complex construct such as successful experiential learning.

However, there is also some suggestion that the LIWC might not be an adequate tool for measuring well-being. Wang et al examined the validity of Facebook's Gross National Happiness (FGNH) tool (which is based on the LIWC) in measuring mood and well-being by comparing it with scores on Diener's Satisfaction with Life Scale (SWLS - which was used in this thesis as one of the "well-being measures") (Wang, Kosinski, Stillwell, & Rust, 2012). They concluded that FGNH and SWLS were not significantly correlated, and indeed there was a negative correlation coefficient. Aggregated SWLS scores showed a positive relationship with numbers of negative words in status updates; therefore they suggest that FGNH is not a valid measure for either mood or well-being, but it may play a role in mood regulation. This finding raises the possibility that people might be dishonest in their presentations of self to represent themselves as being more positive/ understanding in order to meet social expectations where they might in fact be feeling negative or envious. The level of expressed positivity might be in reciprocal proportion to the level of felt negativity.

So there are differing opinions on what linguistic analysis tools are able to say about well-being by looking at online data, and it may be that certain types of data emerge as being more reliable than others. There will be more consideration of this in section 5 (Discussion) of the thesis. But from the literature reviewed, there is tentative support for the idea that both psychological outcome measures and the LIWC can be used - separately or in conjunction -

to assess levels of emotion in online participants. The other major focus of research has been on physiological measures, but here too there is no consensus on the best approach.

2.4 Conclusion

This literature review on emotions and learning concurs with Rienties and Rivers' recent review which states that "Emotions play a critical role in the learning and teaching process because learners' feelings impact motivation, self-regulation and academic achievement" (Rienties & Rivers, 2014, p.1). There is consensus that cognition and emotion are involved in learning, although theories vary greatly on their relative importance and roles. Positive emotions are generally conducive of learning (and negative emotions are barriers), and they have an optimum level for facilitating learning, as they facilitate cognitive processes vital to learning such as memory and attention. These findings are also relevant to e-learning, where the internet appears to afford certain ways of being-in-the-world/online with associated emotional flavours. The lack of visual feedback has a significant impact on e-learners' ability to accurately detect others' emotions, although the processes fundamental to production, perception and recognition of e-learners' own emotions remain unaffected by whether the person is online or offline.

3 METHODOLOGY

This section considers the methodological issues involved in conducting research in e-learning, including the theoretical assumptions taken in the current research, the research design chosen and how this worked in practice.

3.1 Theoretical framework

The purpose of research is to collate and analyse data in order to "understand, describe, predict or control an educational or psychological phenomenon or to empower individuals in such contexts" and theory is used "to establish relationships between or among constructs that describe or explain a phenomenon by going beyond the local event and trying to connect it with similar events" (Mertens, 2005, p.2). Guba and Lincoln (1994) differentiate between competing paradigms of inquiry, and in doing so they identify three questions which can guide the researcher in selecting an appropriate research paradigm. Heron and Reason summarize these as:

- The ontological question - What is the form and nature of reality and, therefore, what is there that can be known about it?
- The epistemological question – What is the relationship between the knower or would- be knower and what can be known?
- The methodological question – How can the inquirer…go about finding out whatever he or she believes can be known about?

(Heron & Reason, 1997, p.276)

3.1.1 Paradigms

The concept of "research paradigm" encompasses these considerations and standpoints, while at the same time making demands on the researcher in terms of question and interpretive stance (Denzin & Lincoln, 2005). There are a number of typologies of paradigms, and one example from Mackenzie and Knipe (2006) is the following:

- Post-positivist (and positivist) paradigm which *"reflects a deterministic philosophy in which causes probably determine effects or outcomes"* (Creswell, 2003, p.7)*.*
- Interpretivist/ constructivist paradigm which *relies upon the "participants' views of the situation being studied"* (Creswell, 2003, p.8) *and recognises the impact on the research of their own background and experiences*
- Transformative paradigm where *researchers "believe that inquiry needs to be intertwined with politics and a political agenda"* (Creswell, 2003)*, p.9 and contain an action agenda for reform "that may change the lives of the participants, the institutions in which individuals work or live, and the researcher's life"* (Creswell, 2003, p.9-10)*.*

- Pragmatic paradigm where the researcher *is not committed to any one system of philosophy or reality. Pragmatist researchers focus on the 'what' and 'how' of the research problem* (Creswell, 2003, p.11)*.*

<div align="right">(Mackenzie & Knipe, 2006)</div>

(See <u>Appendix XIII</u> for a summary table).

This categorisation suggests that interpretivist/ constructivist paradigm would fit well with the aims of the current study; there was also a transformative aspect to the research in that its results provide potential for improvement of teaching practice, and that the educational experience being studied provided e-learners not only with academic qualifications, but with opportunities for self-improvement, lifelong learning and transformative learning. Crotty suggests that the selection of a research paradigm for a given study must "be based on the 'goodness of fit' or appropriateness to the subject of the inquiry", whilst also acknowledging that whichever paradigm is selected may have "some 'blind spots' which could well be addressed by another approach" (Crotty, 1998, p.10). Ironically, the various approaches to knowledge, ranging from truth claims to attempts at integrating disparate views, seem to all stem from a positivist position whereby it is possible to have an overview of the nature of knowledge and of being; such a position appears optimistic, to say the least. As the current study involves online interactions and data collection, it is important to consider what impact the online context has on the ontology, epistemology and output of the internet researcher. In other words, how does *being* online impact upon *doing* online?

As a research paradigm, constructivism "…assumes a relativist ontology (there are multiple realities), a subjectivist epistemology (knower and respondent co-create understandings), and a naturalistic (in the natural world) set of methodological procedures" (Denzin & Lincoln, 2005, p.24). Speaking of the peer and student-to-teacher interactions which internet-based communications - such as e-mails and on-line discussion forums - afford, Tsai comments that "many researchers… have suggested that the features of the Internet-based learning environments and the constructivist theory share similar facets for the improvement of teaching practice" (Tsai, 2008, p.17). Similarly, various online learning advocates "encourage a constructivist view to address diverse learners' needs and promote democratic learning" (Gulati, 2004, p.4) and this is facilitated "through learner participation in structured online discussions, collaborative online activities, online assessment, interactive course material, and the changing role of the teacher from 'a sage to a guide'" (Gulati, 2004, p. 4).

3.1.2 Ontology (methodological considerations)

An assumption of the constructivist research paradigm is the socially constructed nature of reality; it is also thought of as dynamic and complex with multiple constructions and

interpretations of that reality (Guba & Lincoln, 2005; Robson, 2002). The constructivist approach allows multiple meanings to come out of the data by focusing on understanding the topic from participants' perspective (Crotty, 1998; Guba & Lincoln, 1994; Miles & Huberman, 1994). Thus participants become co-creators of reality "illuminating that which is little known or hidden from view" in the research process (Heck & Hallinger, 1999, p. 147).

3.1.3 Epistemology

How do we know what we know about online interactions, about the knowledge produced and the emotions experienced online? Is there a case for a specific "epistemology of the internet"?

A vital consideration for the internet researcher, indeed for any researcher using online resources, is the reliability of the already vast and ever-increasing amount of information available online - "Internet Epistemology includes the highly critical task of examining and evaluating the large quantities of pseudoscience that the Web is being used to promulgate" (Thagard, 1998). Braten, Strømsø, & Samuelstuen (2005) identified two dimensions of epistemological beliefs concerning Internet-based knowledge and knowing:

> "The first dimension, general Internet epistemology, ranged from the integrated view that the Internet is an essential source of true, specific facts to doubt about the Internet as a good source of true, factual knowledge. The other dimension, justification for knowing, ranged from the view that Internet-based knowledge claims can be accepted without critical evaluation to the view that knowledge claims encountered on the Internet should be checked against other sources, reason, and prior knowledge. Further, it was found that students' personal epistemology concerning Internet-based knowledge and knowing predicted their self-reports of Internet-search and -communication activities in better and more consistent ways than did Internet self-efficacy beliefs".

> (Braten, Strømsø, & Samuelstuen, 2005, p.141)

The uncertainty about the provenance of online materials is often echoed by, or even contributes to, similar feelings of uncertainty amongst online participants as to how they are perceived, and how they perceive others.

A number of the characteristics of emotions contribute to the challenge of knowing about emotions online. Firstly, emotions usually occur (or more accurately, are perceived) very quickly after a stimulus has been detected; but it may be some time before a learner communicates their emotional state to others, if indeed they do so at all. The spontaneous nature of emotions, in conjunction with a medium which does not enable instant access to others' emotional states, leads to a complicated situation for both the online protagonists, and the researchers hoping to see and study emotions online. The e-learner is continually

involved in transitions from one emotional *state* to another, as they navigate around an online learning environment, encounter novel theoretical material, engage in reflection on their own personal histories and relate to other students and tutors. The extent to which these emotions transfer into students' postings is unclear.

A second issue is that consideration of emotions evoked by an online interaction does not take into account what may be happening in the space around them, e.g. they may be accessing online materials from home, with all the emotional connotations that home holds, whilst friends or family are present; there will inevitably be personal issues impacting upon their emotional state at any particular time. The same could be said of attendance learning, in that students in a lecture theatre bring into that space, and evoke into that space, any number of emotional states depending on extraneous factors; similarly, the architectural design and conditions of the physical space have a marked impact upon the emotional experience of those within it. The emotions aroused directly by learning activities, and the emotional milieu which the learner is immersed in, are in dialogue and can impact upon one another - a learner may become more frustrated than usual with a technical problem with their learning materials because of a difficult personal circumstance; a learner may disclose personal information online because they are feeling isolated in their "real world" social life.

There is a further complicating factor in that learners have more control over their emotional expression than in face-to-face situations, where apparently spontaneous speech, gesture and body language seem to give clues as to internal states. Asynchronous communication makes it possible for a learner to feel ashamed, or angry, or surprised; but the time lag between experiencing and communicating to others means that the e-learner's emotional state may have changed when they come to reply. Alternatively, they can choose to hide or moderate their reactions. Wosnitza and Volet acknowledge the restrictions for studying emotion caused by not being able to see one another, where "learners can hide their emotions from others" (Wosnitza & Volet, 2005, p.452). But what does this mean for the researcher looking for clues as to emotional reactions to online interactions?

3.1.4 Ethnography

Given the extent of my involvement in co-creating and collating the data, the obvious methodology to adopt was some kind of ethnography:

> "In its most characteristic form it involves the ethnographer participating, overtly or covertly in people's daily lives for an extended period of time, watching what happens, listening to what is said, asking questions - in fact, collecting whatever data are available to throw light on the issues that the focus of the research."
>
> (Hammersley & Atkinson, 1995, p.1)

> "What defines it [doing ethnography] is the kind of intellectual effort it is: an elaborate venture in, to borrow a notion from Gilbert Ryle, 'thick description.'"
>
> (Geertz, 1973, p.4)

How has the advent of the internet changed enthnographic practices? Hine (2008) states, "virtual ethnography transfers the ethnographic tradition of the researcher as an embodied research instrument to the social spaces of the Internet" (Hine, 2008). Leading on from the early studies (Reid, 1994) (Reid, 1994) (Correll, 1995) (Baym, 2001) (Baym, 1995), there have been a number of ethnographic approaches to studying the Internet, so it has well-established credentials as an approach that can be used with online contexts and data.

I held a number of roles relating to the participants:

- Course Director
- Research Assistant and Research Associate
- Module Co-ordinator/tutor
- Member of learning community
- PhD research student

I was involved in developing the programme initially in 2002, and was a tutor on the modules from the beginning, right until the exit of the last students in 2014. The collaborative nature of the learning model developed organically through teaching, and via continual dialogue with other colleagues who set the programme up. So it could be argued that my epistemology and ontology were important factors in the development of the programme, and therefore in the quality of online interactions and the kind of data the students returned.

For some of the data, I was an active participant, e.g. in the discussion forum and chatroom postings, I was tutor of a group of students, so his postings directly impacted, and were directly impacted by, the postings of other students and tutors. Similarly, as I conducted the qualitative interviews, his questions and interactions with interviewees form a constituent part of the data. For data such as online participation, data capture took place automatically, via the webserver, and was available through the VLE. Where I was present, and a co-producer of the data set, some of the same issues arise as with face-to-face research - how does the researcher ensure that they are present in such a way that they can participate in an authentic way, observe interactions and collect data, whilst retaining sufficient objectivity and validity? Hine comments:

> "The position in which a particular ethnographer is placed on the spectrum between full participant and full observer… places an onus on the ethnographer to do careful work on their assumptions. For the virtual ethnographer, this can entail examining their own expectations about what use of the Internet entails,

and this can render the reflexive approach advocated by Markham (1998) and Hine (2000) particularly significant."

<div align="right">(Hine, 2008, p.262)</div>

With the active involvement of the researcher, the reliability of the data is of paramount importance, because:

> "The data upon which we build an ethnography is, according to Rabinow (1977), doubly mediated through both the ethnographer's presence - which forms the occasion for the production of accounts - and the efforts of informants to produce the kind of accounts we ask of them… Taking on an active participant role in an overt ethnography means that the ethnographer has to negotiate access, and self-present in a way that members will find acceptable."

<div align="right">(Hine, 2008, p.264)</div>

It could be the case that although I had consent from participants, and access to student data, my multiple roles (course director, tutor and researcher) meant that students' focus was on the course requirements, and they were not aware of their participation as subjects of the research. The qualitative forum data were queried for evidence of this, and it was investigated further in the qualitative interviews. The adoption of an ethnographic approach overall was designed to ameliorate the potential for this, to make clear my involvement in data production, collection and analysis, and to allow the experience accrued through this involvement to inform the process and output of research, without unduly influencing it in any direction.

3.1.5 Mixed Methods

From table 10 (below), it was evident that both qualitative and quantitative data were potentially available to me, and that a mixed methods design could be used, if appropriate - this involves "integrating quantitative and qualitative data collection and analysis in a single study or program of inquiry" (Creswell, Fetters, & Ivankova, 2004, p.7). There are a number of reasons for favouring such an approach, e.g. increasing confidence (by increasing validity) and comprehensiveness (by answering more questions), and the likelihood of exposing paradoxes and contradictions (Turner, 2001). It can provide triangulation, to validate, corroborate or crystallize research findings, and its use is considered by some to be pragmatic and flexible, e.g. (Maxcy, 2003; Onwuegbuzie & Leech, 2005). Mixed methods research can be emancipatory by giving voice to those not normally able to contribute (Mertens, 2003), can increase 'yield', provide more insights, and "reach the parts other studies cannot reach" (O'Cathain, Murphy, & Nicholl, 2007). And the availability of high quality mixed methods research has largely managed to dispel the conception, illustrated in

the table below, that the qualitative and quantitative research paradigms are incommensurate:

Qualitative research	v	Quantitative research
Constructivism, interpretivism	v	Positivism, post positivism
Idealism	v	Realism
Relationship between researcher and researched	v	Objective researcher

Table 10 - Comparison of quantitative and qualitative research paradigms

Criticisms of mixed methods research include the notion that it involves combining less detailed or rigorous quantitative and qualitative in order to provide a justification for weaker work, e.g. a qualitative piece of work being given a veneer of scientific credibility by the addition of some statistical work, or a quantitative piece being given some "depth" via qualitative approaches.

Various typologies of mixed methods research are available, but Creswell (2003) suggests:
- Sequential explanatory
- Sequential exploratory
- Sequential transformative
- Concurrent triangulation
- Concurrent nested
- Concurrent transformative

In mixed methods work, the sequence of respective research methods is significant:

- Sequential, e.g. Quan → QUAL
- Concurrent, e.g. QUAN + QUAL
- Iterative, e.g. Qual → QUAN → Qual

as is priority, status and dominance:

- Quant and qual have equal status
- Quantitative is dominant
- Qualitative is dominant

As discussed below, the current research adopted a concurrent triangulation method, with a sequential (quant→qual) approach, where the quant and qual had equal status. It was a fairly speculative approach in that different ways of conceptualizing and measuring emotions were being tried, in the expectation that they would all make a contribution to the same research question.

A number of researchers have found the mixed methods approach to be useful for research

into online phenomena. Callahan and Inckle used mixed methods to triangulate data on online emotional support; their study consisted of a statistical analysis of data from a children's helpline, along with qualitative analyses of interviews with practitioners and a focus group (Callahan & Inckle, 2012). Wiklun-Endgblum's study on e-learning experiences combines "questionnaires, eye tracking, screen recordings, observation, and a stimulated instant recall (SIR) interview" and the study is framed as "an exploration of the methods, as well as of the research subject" (Wiklund-Engblum, 2010, p.4). Given Hodkinson and McLeod's contention that specific research methodologies usually have strong affinities with different conceptualisations of learning, and their claim that "No methodology can act as a conceptually neutral lens, transparently revealing what learning is" (Hodkinson & Macleod, 2010, p.185), Wiklund-Englom concludes that methodological triangulation is beneficial in exploring the e-learning process. There are commonly held to be four types of triangulation (Denzin, 1970):

1. Data triangulation - gathering data from different sources or via different sampling strategies, resulting in data from different times, social situations or groups of people

2. Investigator triangulation - gathering data from more than one researcher in the field

3. Theoretical triangulation - gathering and interpreting data from more than one theoretical position

4. Methodological triangulation - gathering data via more than one method.

The triangulation in this case is both data triangulation (using the same overall cohort of students but with different groups providing different data sets at different times) and methodological triangulation (using well-being measures, linguistic analysis and qualitative interview methods).

3.1.6 Qualitative analysis

Despite immersion in the learning community (hence the adoption of an ethnographic frame), and familiarity with the data from previous research (as presented in the "Background" section 1.2), I did not approach the qualitative data with concrete hypotheses about the role of emotions in the online learning programme. What was needed was a way of building up theory from the data itself, and an approach which set aside preconceptions and enabled the data to inform theory. The foremost candidate was "grounded theory" (GT) which was developed by Glaser and Strauss in the early 1960s in the United States (Glaser & Strauss, 1965, 1968; Strauss & Glaser, 1970). Charmaz comments "Glaser and Strauss's book *The Discovery of Grounded Theory* (1967)… advocated *developing* theories from research

grounded in data rather than *deducing* testable hypotheses from existing theories" (Charmaz, 2006, p.4). There have been divergent developments in GT since then, with Strauss (and colleague Corbin) moving towards verification (Corbin & Strauss, 1990; Strauss & Corbin, 1990, 2008) whilst Strauss remained closer to his original vision of reliance on direct, narrow empiricism to facilitate analysis of basic social processes. Charmaz subsequently developed a more pragmatic approach which suggested that data and theories were constructed, not discovered, by the researcher through their work with participants and data (Charmaz, 2000). This "constructivist grounded theory" (CGT) was aligned with the suggested interpretivist/ constructivist paradigm for this thesis, thus Charmaz' method was an early candidate for use with this research.

An important consideration, at this point, is the relation between a GT approach, my pre-existing knowledge of the evidence base, and the early quantitative work presented in the "Background" section 1.2 of this thesis. Given my multiple roles, and involvement in collating and analysing data throughout (see table 2), to what extent was it possible to claim that this prior knowledge was not shaping the qualitative analysis (and thereby making a GT approach unfeasible)? Given my avowed position as a member of the learning community, was an ethnographic approach incompatible with GT? (Some theorists suggest that it is possible to use GT methods within an ethnographic framework, and that merging the theories is possible, e.g. Uhan, Malnar, & Kurdija (2013)). In practice, as can be seen in the analysis of Study 3 (section 3.2.6.3), the coding approach used followed a CGT approach, but given the possibility that prior knowledge was influencing the analysis, the approach could more accurately be described as a broadly inductive approach, using CGT coding principles to attempt to "bracket off" any prior knowledge. The aim was to allow the data to speak, and for its messages not to be unduly influenced by my involvement in the course or previous consideration of the research question. It is difficult to achieve certainty about what the impact was, if any at all, of this prior knowledge, and what the balance was between benefits and drawbacks. On this issue of methodological differentiation within the variety of GT flavours, Bryant comments:

> "The epistemological issues that separate different strands, or branches of the GTM family, can then be set to one side provided that people's research writings do not seek to make strong epistemological claims: the ultimate criterion of good research should be that it makes a difference" (Bryant, 2009, p.32)

This surely also applies here, where we are considering the boundary of what is thought to be GT or not. This can be a confusing area for the novice researcher (Evans, 2013), but the most important consideration is whether, given the limitations of the research method used, we can say with confidence that the research nevertheless makes a difference.

3.2 Research Design

Given a longstanding interest in the role of emotions in an e-learning psychotherapy education programme, dating from the early days of the programme in 2002, I have informally considered a number of different research questions over this period, and a variety of datasets has been collected, all of which are relevant to the current research question. Indeed, whilst descriptions of research often fail to capture the role that circumstance and serendipity play, it is fair to say that in the process of "finding a path to knowledge", this research took on the characteristics of a long hike over unfamiliar, sometimes difficult terrain, towards what sometimes appeared to be a shifting destination. As the novelist W.G.Sebald comments of his own research:

> "I never liked doing things systematically. Not even my PhD research was done systematically. It was always done in a random, haphazard fashion. And the more I got on, the more I felt that, really, one can find something only in that way, ie, in the same way in which, say, a dog runs through a field."
>
> (Schütte, 2011)

It is the function of a research thesis to present the destination (research question), describe the journey there and present what can be known about it. In the process, much of the uncertainty surrounding this newly acquired knowledge is inevitably simplified or reduced, and the research itself is an attempt to present complex phenomena in comprehensible ways. But it would be a misrepresentation to suggest that at all times the journey proceeded in a planned and orderly way - at every stage, decisions were influenced by diverse thoughts and influenced by readings and conversations. This is only problematic if an assumption is made that research must be conducted in an entirely logical fashion, without the possibility of accidental or unforeseen events or information having an influence on its course. It is surely the case that- as the history of human thought suggests- such an ordered approach to knowledge is not only impossible to obtain in real-world and applied settings, but is in fact inimical to the kind of creativity and original thinking which can propel a piece of research forwards into new, in chartered territory. Whilst providing clear and logical narratives is an aid to understanding, to attempt to present research as without its challenges, limitations and mistakes is dishonest, and in my experience, it is these challenges which have ultimately brought the most learning from the research.

3.2.1 Ethical approval

Students on the SEPTIMUS, DEEP and CEP programmes agreed, when providing their application forms to their respective institutions across Europe, to allow their anonymized data to be analysed for the purposes of the final report and resulting publications. They were

also reminded of the use of their data when completing questionnaires at various stages of their online programmes. Ethics applications made to the School of Health and Related Research (ScHARR) ethics board for the SEPTIMUS, DEEP and CEP research programmes outlined the various sources of student data that would be used and how data would be handled. The initial ScHARR ethics application for this thesis also covered the same array of data (categories 1-5 in table 4, see below) and was approved; after a change in supervisor, located in the Information School, and an amendment to the thesis to gather and analyse qualitative data (category 6) not previously covered by the ScHARR ethics approval, an amendment was made to the ethics forms and approval sought from the Information School for using this data, along with the data from 1-5 - see both approval letters (Appendix XV). Even since this last amendment, there have been developments in what kinds of data are gathered and how that is done, e.g. the field of learning analytics has grown, and become a realistic methodological approach for analysing learners' data. Whilst the approach taken in this thesis is similar to learning analytic approaches, and hence ethical approval for this thesis is still adequate, there are new, ethical issues confronting researchers in e-learning, such as the outsourcing of student data storage to cloud computing services, and the variety of devices that students now routinely use for learning ("Digital literacy: the perks and pitfalls of plugged-in students," 2015). The Open University in the UK has developed a policy on the use of student data in learning analytics (Open University, 2015).

A research design for this thesis developed organically over time, in conjunction with the dataset developed by the project partners. Considerations of which Methodology were best suited to answer the research question were influenced, and to an extent limited, by the facts about the nature of the data, the participants, and my involvement in the production and collection of the data. Until the last students exited the programme in January 2015, I was employed by the University of Sheffield as a Research Associate and as Course Director of the MSc in Psychotherapy Studies. This gave me an organizing and supervisory role in students' learning. In addition, I had a role as course tutor, which gave me a role as an active participant in the production of the corpus of data (for details of how the data fell into various categories, and my role, see table 2).

3.2.2 Participants

Referring back to table 2, all data except the qualitative interviews were collected between 2008 and 2010 from the four partner institutions henceforth known as Sheffield, NSPC, Leuven and Bordeaux. Partners differed in terms of the background and number of students they were able to recruit for the duration of the project, and the approach to learning and

teaching they adopted, as detailed below. A face-to-face comparison group was also recruited:

Partner	Description of student group	Number of students	Length of modules	Number of tutors	Pedagogical approach
Sheffield	Mix of therapists (CPD) and lifelong learners	54	5 or 10 week online modules	5	high collaborative e-learning
NSPC	Psychotherapy trainees	24	5 or 10 week online modules	3	medium collaborative e-learning
Leuven	Established psychotherapists	24	32 week cohort, in four 8 week-blocks; Mix of e-learning and F2F meetings	3	medium collaborative e-learning
Bordeaux	Medical undergraduates	22	10 week online module	3	low collaborative e-learning
Face-to-face comparison group	Psychotherapy trainees (via Partner 2)	6	Attending week-long intensive psychotherapy course	2	medium (?) collaborative F2F learning

Table 11 - Characteristics of CEP partners

3.2.3 Reporting

There are a variety of standards suggested for how to report a mixed methods study, and O'Cathain et al (2008) have proposed some standards for this, known as "Good Reporting of A Mixed Methods Study (GRAMMS)":

i. *Describe the justification for using a mixed methods approach to the research question*

ii. *Describe the design in terms of the purpose, priority and sequence of methods*

iii. *Describe each method in terms of sampling, data collection and analysis*

iv. *Describe where integration has occurred, how it has occurred and who has participated in it*

v. *Describe any limitation of one method associated with the present of the other method*

vi. *Describe any insights gained from mixing or integrating methods*

These are listed below and in the following sections, along with a response for the current study:

i. *Describe the justification for using a mixed methods approach to the research question*

The main reasons for using a mixed methods approach were that both quantitative and qualitative data relating to the role of emotions in e-learning were readily available, and appeared to have the potential to contribute to answering the research question. The idea that mixed methods are suitable for looking at online phenomena is supported by the literature, as hitherto discussed. In addition, using a number of different sources of data, and approaches to this data, was likely to yield a more comprehensive answer to the question. Indeed, the secondary research question was a comparison of different methods used to study the role of emotions, so if only quantitative or qualitative methods had been used, this would have significantly reduced the methods available for study. In combination, these two reasons - availability of data and variety of methodological approaches - provided good support for the decision to adopt a mixed methods approach for this thesis. The different methods were therefore adopted as a means of triangulation, and in anticipation that some or all of them would not, in fact, be adequate for answering the research question. Although not a justification for their adoption, a benefit from using mixed methods is the acquisition of new quantitative and qualitative skills, and the insight gained from the triangulation and integrations processes; the same benefit is sometimes cited as a drawback, that in mixed methods research, neither the quantitative nor qualitative parts are done as well as in non-mixed methods research.

ii. *Describe the design in terms of the purpose, priority and sequence of methods*

The purpose of both the quantitative and qualitative methods was the same - to investigate the role of emotions in e-learning in psychotherapy training. The quantitative elements, described in more detail below, consisted of the application of mental health outcome measures to look at levels of mental health and well-being amongst e-learners, and the use of a linguistic analysis tool to examine the language being used by e-learners.

These methods could be considered to be looking at slightly different aspects in terms of the role of emotions. The outcome measures were using self-report to detect global mental states which were made up of a mix of emotions and psychological processes. The linguistic analysis was also looking for fluctuation in emotions, but from a different source, namely from the language that e-learners used in their discussion forum postings. If either approach was able to detect fluctuations in emotional states, as might reasonably be expected during the course of a student's experience, that would suggest it was a reliable method for monitoring emotions. It is also reasonable to conclude, leading on from the literature review, that changes in emotions for e-learners is to an extent expected - emotions have been shown to be central to learning (be that online or face-to-face).

Methods were used concurrently to collect data, but in terms of the analysis, it was the quantitative measures which were explored first, both as background to the development of the research question (e.g. early analysis for reporting in the CEP project of student engagement via student activity levels) and with the use of outcome measures and linguistic analysis; a qualitative approach was used in the last phase, that of interviewing ex-students. The quantitative and qualitative approaches were given equal status in terms of their potential contribution to answering the research questions. Of these, the consideration of which methods were most effective for detecting and measuring emotion, and what type of methods they were, was secondary to the main aim, that of exploring the role of emotions in e-learning in psychotherapy.

iii.   Describe each method in terms of sampling, data collection and analysis

and

v. Describe any limitation of one method associated with the present (sic) of the other method

3.2.4 Study 1 - Mental health/well-being measures

A selection of tools for measuring well-being, mental health was gathered by the project co-ordinator (Prof Tantam) and myself as a result of a literature review and discussed at a face-to-face meeting of project partners. The final decision was made by the partnership on the basis of the measures' relevance to the emotional experience of learners, the availability of the measures, and their ease of completion for students. As well as tracking students' anxiety, depression and well-being, the partnership felt that having some measure of students' spiritual experience was important, hence the selection of the SAIL and SIWB along with PHQ-9, WEMWBS, GAD-7 and SWLS (see table 2 for details). The partner in Bordeaux opted out of using SAIL for cultural reasons, because it was theistic - some of the items referred to religion, e.g. "I talk about spiritual themes with others (themes such as the meaning in life, death or religion)" - and therefore went against the constitutional commitment in France which states that education should be secular, i.e. uninfluenced by religious institutions. The partner in Leuven had suggested the inclusion of SAIL, and decided not to include the SIWB given that the two scales covered similar ground.

3.2.4.1 Sampling

Students from all four partners were potentially available for participation in this study, and as part of their registration procedure, they had completed a consent form agreeing that any

anonymized data arising from their participation could be used for research publications. The students who chose to complete outcome measures were a self-selecting group who were opting in to the process, and it is not possible to say what their reasons for participation were, or whether those participating differed in any way from non-participants (response rates are shown in table 12 below). The sampling procedure could be described as a "Volunteer sample" in that whilst all registered students could potentially provide data, only those who chose to did so (Teddlie & Yu, 2007).

All students enrolled on one of the programmes run during the CEP project were asked to complete the measures (with some variation, also shown in table 2). Sixty-six paired responses from a total of 131 registered students were obtained (NB some students may have provided more than one set of data, i.e. on different modules):

	Sheffield	NSPC	Leuven	Bordeaux	F2F
Total number of registered students (2008-10)	54	24	24	22	7
Number of students returning pre- or post-module data	29	13	20	16	7
Response rate	54%	54%	83%	72%	100%
Number of modules with pre- or post-module data	42	19	20	16	7
Number of modules with paired pre- and post-module data	28	10	20	5	3
Average age of students	40	35	48	n/a	35
Female:male ratio	2.6:1	3.3:1	4:1	1.6:1	2.5:1

Table 12 - Students providing outcome measure data

Of all those returning pre- or post-module data (n=85) for whom gender is known, 60 (73%) were female and 22 (27%) were male. The average age of all learners was 41 (average age of just the e-learners - excluding F2F - was 42). Further demographic data, e.g. professional background, country of origin, is not available, although the vast majority of students were clinicians (counsellors, psychotherapists) and most were registered as home students in the partner country. Importantly, the data set was not complete - a number of students failed to complete either the pre- or post-module measure, and some did not complete either. Partners were aware of the demands already placed on students by their e-learning studies, and it appears that the relatively low completion rate was a reflection of these demands. The varying response rates were also a result of how the cohorts were established - it was easier

for some partners, where the student group came together specifically for the period 2008-10, as opposed to others where there were many students already enrolled on the programme, and who had to be introduced to the idea of and procedure for submitting feedback questionnaires.

3.2.4.2 Data collection

The measures were combined by myself and the lead partner for Sheffield into one questionnaire of 74 items and this was made available via a link in the course materials both before and after students engaged in a module, so that change scores could be calculated, i.e. a measure obtained of a student's level of anxiety at the start of a module and at the end; the post-module questionnaire contained an additional 4 items asking students about satisfaction levels with the course. Due to the timings of when modules were made available and when questionnaires were implemented, data was collected on the following modules in the academic year 2009-10:

- Unit 2 - Existential and Human Issues
- Unit 3 - Conflict and Reconciliation
- Unit 5 - Ethics in Counselling And Psychotherapy
- Unit 7 - Development through the Life-Cycle
- Unit 8 - Research Methods

Each group was formed just for the duration of that particular module; thus at the end of each module, there was no guarantee that students would subsequently study in the same group. Using the schema proposed by Tuckman from his study of undergraduate group teaching, it is theorized that the group goes through the development stages: forming, norming, storming and performing (Tuckman, 1965). Johnson et al studied the development of an e-learning group, and found "rapid movement between each stage with almost no evidence of the storming stage", perhaps because of "the short amount of time that each team had to accomplish assignments (about 2 weeks per assignment)" (Johnson et al., 2002, p.385). They therefore propose an iterative model consisting of three stages: (1) forming, (2) norming, and (3) performing; when conflict arose among team members, they would resolve the conflict and continue with the process of forming, norming, and performing. Any measures taken in week 1 will show the group still in formation, with all the anxiety and uncertainty associated with that; by week 10, the group will have formed, and also gone through the norming stage (and potentially through various cycles of conflict) to arrive at performing.

3.2.4.3 Analysis

Change scores in the battery of well-being measures were calculated by examining differences between week 1 and week 10 scores. This figure does not, of course, take into account the full trajectory over the course of a 10-week module but captures emotions associated with the initial and final stages in the life of the group. Once the data were examined, it was evident that the modules *Existential & Human Issues* (henceforth "*Existential*") and *Conflict & Reconciliation* (henceforth "*Conflict*") were the ones with the most complete data set, so only results from these are included in this research. The analysis consisted of calculating scores for each of the individual measures for each participant for whom pre- and post- module data was available; the group means and standard deviations were calculated, and compared to look for differences. These were compared to clinical cut-off scores for the measures to consider whether, as a group, any of the measures were detecting levels of for example anxiety that were clinically significant. A Pearson correlation was then calculated – a measure of the linear correlation (dependence) between individual's scores on all the measures (both pre- and post-module). A t-test was undertaken to determine whether the pre- and post- module data for each individual measure were significantly different from each other.

3.2.4.4 Limitations

Given the volunteer sampling approach used for gathering outcome measure data, it proved difficult to obtain as much data as was hoped for. This was largely due to the burden on students of completing the questionnaire - an inclusive approach was taken to the questionnaire, with a number of measures being used in combination, resulting in a long overall questionnaire. Despite encouragement from partners and myself (as Research Associate), students were under no obligation to complete the questionnaire, and ultimately the low response rate meant it was difficult to gather sufficient data to provide significant results and allow firm conclusions on their usefulness in tracking the role of emotions.

There was an issue of internal validity with the practice of using combined measures in one questionnaire as the measures ask respondents about their experience over different timeframes - the PHQ-9, GAD-7 and WEMWBS ask about experiences over the previous 2 weeks whereas SWLS ("In most ways my life is close to my ideal"), SIWB ("There is not much I can do to help myself") and SAIL ("I know what my position is in life") give statements with which respondents can agree or disagree, but with no stated timescale. Students answering the PHQ-9, GAD-7 and WEMWBS items in week 1 may have either included some of the days before the module began, or they may have discounted that time and

only focused on the few days since the start of the module. They may have also been influenced to answer all the scales as if referring to the previous 2-week period. To address this, the measures could potentially all have been given every 2 weeks over the 10 week course, and that would have provided coverage of the entire duration of the course, but this would have placed a significant burden on students, and as completion of the questionnaire was done on a voluntary basis, it is unlikely that many students would have managed to provide a full set of data. It proved challenging enough to collect the data at two points, let alone five or more. This was borne out by the fact that there were relatively low completion rates for pre- or post-module data (as low as 54%), with lower rates for students providing paired pre- and post-module measures (i.e. several students provided only the pre- or post-module data, and thus it was not possible to calculate their change scores).

The timeframe for generation of the data was 2008-10, and thus the data are up to 7 years old. Whilst there is no reason to believe that the data have lost currency in the interim, and the various measures employed are still in general use, there have been changes in the use of technology, such as the continued rise of social media, which have implications for mental health and well-being (Blackmore & Tantam, 2014a). Students are increasingly familiar with online interactions, and comfortable with the process of connecting with others without physical co-presence; this could have had an impact on the way that students experienced emotions during their studies. The same limitation applies to study 2, with data being taken from a discussion forum during the year 2009-10. The interviews in study 3 were conducted in 20013-14, although they referred to experiences from previous years, so the same limitations apply. A related limitation is that some of the interviewees pointed out that they were recalling events from between 1 and 5 years ago, so their memory could have changed in the interim, and an interview immediately after the end of their studies might have yielded different results. However, despite occasional misgivings about accuracy of recall, respondents seemed content that they were able to remember their experiences with sufficient accuracy to be able to comment on the research questions. To enhance "credibility", it would have been preferable to engage in "member-checking" (for all three studies) where preliminary findings could have been shared with participants for comment; whilst all students were routinely given their well-being outcome measure scores, the timings were such that it was difficult to analyse the other data (LIWC and student interview) in such a way that timely feedback could be provided – many of the participating students had in the meantime exited the programme and left the University, and contacting ex-students (e.g. to check out with them results from studies) was not routinely done.

A general limitation of the research design, and this is applicable to all three studies, is the lack of student involvement in the research design. As key stakeholders in the research, it

would have been ideal to have consulted the students, in the early stages of the CEP project, and to have gained their input into the choice of methods for measuring emotions and evaluating their role in e-learning. This would have added to the validity of measures by ensuring acceptability of methods to participants, with potential improvements in involvement and response rates. Added to this, given the timescale of research and the fact that the MSc is no longer taught at the University of Sheffield, there are limited opportunities for feeding back results of the research to the students who were registered on the programme and who therefore contributed data (either quantitative or qualitative). There is some scope for making personal contact with students, especially those more recent students who were interviewed and for whom personal contact details are available. I will make a summary of the findings available upon request. Beyond that, there is the possibility of disseminating the research via publication in peer-reviewed journal articles, conference presentations and through blog and social media routes.

Perhaps the most fundamental limitation of the measures was that they were only given at the start and end of the module, so were only giving data at two points. Levels of mental health and well-being in any given population are likely to fluctuate significantly, and there is even evidence that scores on these outcome measures can go up and down during the course of a single day. So the frequency of measures was an issue for this study, and it is not clear how effective it was to give the measure at the start and end of a module, and to what extent this captured the students' emotional journeys through the 10-week period.

3.2.5 Study 2 - The Linguistic Inquiry and Word Count (LIWC)

A key component of this thesis is the analysis of the students' online contributions to look for evidence of the role of emotions in e-learning. Commenting on analysis of free text (in questionnaires), Fielding and Lee say "Increasing amounts of textual data are available electronically, making text-based 'macro studies' (large corpora, such as those amassed when analysing text-forms sampled over time) attractive in light of the value of free text over closed questionnaire items" (Fielding & Lee, 2008, p. 503). They go on to suggest that "Highly specified content analysis systems operating on macro corpora can validate small-scale qualitative work" (Fielding & Lee, 2008). A similar approach is adopted by the current thesis - to triangulate the results of a linguistic analysis to other quantitative and qualitative investigations. Speaking of using linguistic approaches specifically to measure emotion, Giani et al comment:

> "the emotional experience of a given person cannot be directly observed, and should be studied as it is, i.e. embedded in a linguistic system. In fact, people can communicate only those aspects of their experience for which they have an

available language, and such a language is also the limit for the expression of the emotions".

<div align="right">(Giani, Brascio, Bruzzese, Garzillo, & Vigilante, 2007, p.338)</div>

A variety of text analysis tools are available - for a full list, see the wiki published by Digital Research Tools (DiRT, n.d.). Of these, the LIWC was the leading candidate because of its ability to calculate the degree to which people use different categories of words across a wide array of texts, and because of its comprehensiveness. It is also one of the most widely used linguistic analysis software packages, and has been used extensively in research. It was decided in the first instance to analyse the asynchronous forum postings rather than the chatroom postings. This was both a practical, pragmatic decision - data collation and analysis was a hugely time-consuming task - and a theoretically informed one – and the asynchronous forum was, from the experience of tutors and students, the place where "deep learning" (Marton & Säljö, 1976) was likely to occur, whereas the chatrooms often served more of a social function in facilitating the development of bonds among students and between students and tutors. These views are borne out by analysis of the qualitative interview data in this thesis (see 4.3).

3.2.5.1 Sampling

LIWC scores were only available from Sheffield and NSPC due to the way that the discussion forums were implemented in partner countries, e.g. Leuven and Bordeaux used discussion forums in a very different way, and discussions were not carried out in English. It was not possible for me to translate the material for analysis. And in the F2F context, discussions held in face-to-face classrooms were not captured for processing by the LIWC. Therefore LIWC scores were calculated for Sheffield and NSPC, and for the same students who provided outcome measure data on the Existential and Conflict modules; this inevitably reduced the amount of data available for analysis, but at that stage, it was considered to be advantageous. (The reasoning, merits and drawbacks of this approach are considered later under 3.2.5.4 Limitations.) The sampling procedure could be therefore described as a "Sampling special or unique cases" (Teddlie & Yu, 2007) in that whilst all registered students could potentially provide data, only data from University of Sheffield students who had also provided outcome measure data were included:

	Sheffield	NSPC	Leuven	Bordeaux	F2F
Total number of registered students (2008-10)	54	24	24	22	7
Number of students for whom calculated LIWC scores were included in the analysis	22	0	0	0	0

Response rate	41%	0%	0%	0%	0%
Average age of students	41	n/a	n/a	n/a	n/a
Female:male ratio	2.6:1	n/a	n/a	n/a	n/a

Table 13 - Students providing LIWC data

In terms of how the discussion forum groups were constituted, this was done in a fairly random manner, with the usual procedure being to ascertain from tutors which timeslots were available, to make students aware of these options, and invite them to choose. The module co-ordinator or course director would then set up viable groups, according to the numbers available, trying to give as many students as possible their first choice, whilst also being mindful of the mix of students. So where it was possible, a group would be organised so as to have a mix of genders, professional backgrounds, cultures, countries of origin, ages, etc. Consequently, the groups were dictated first and foremost by students' own availability, and thereafter by student demographics, with the underlying assumption that diversity would be beneficial for the student experience and for meeting the learning objectives. It is difficult to know, but there may have been some self-selection of groups via communication between students who knew each other from previous modules and who wanted to continue together in subsequent ones, and it was recognized by the course team that it is important that students can engage with one another, and for some students, having a pre-existing relationship with another student was a significant factor in them feeling comfortable and confident on entering a module. The following graphics illustrate data collection: the first shows when LIWC data was collected (and how this relates to collection of data from Well-being measures); the second shows how data was collected during a module, and differentiates between "active" data collection (such as asking students to complete measures) and "passive" data collection (such as gathering together and analysing students' discussion forum postings which occurred as part of their routine learning during the module):
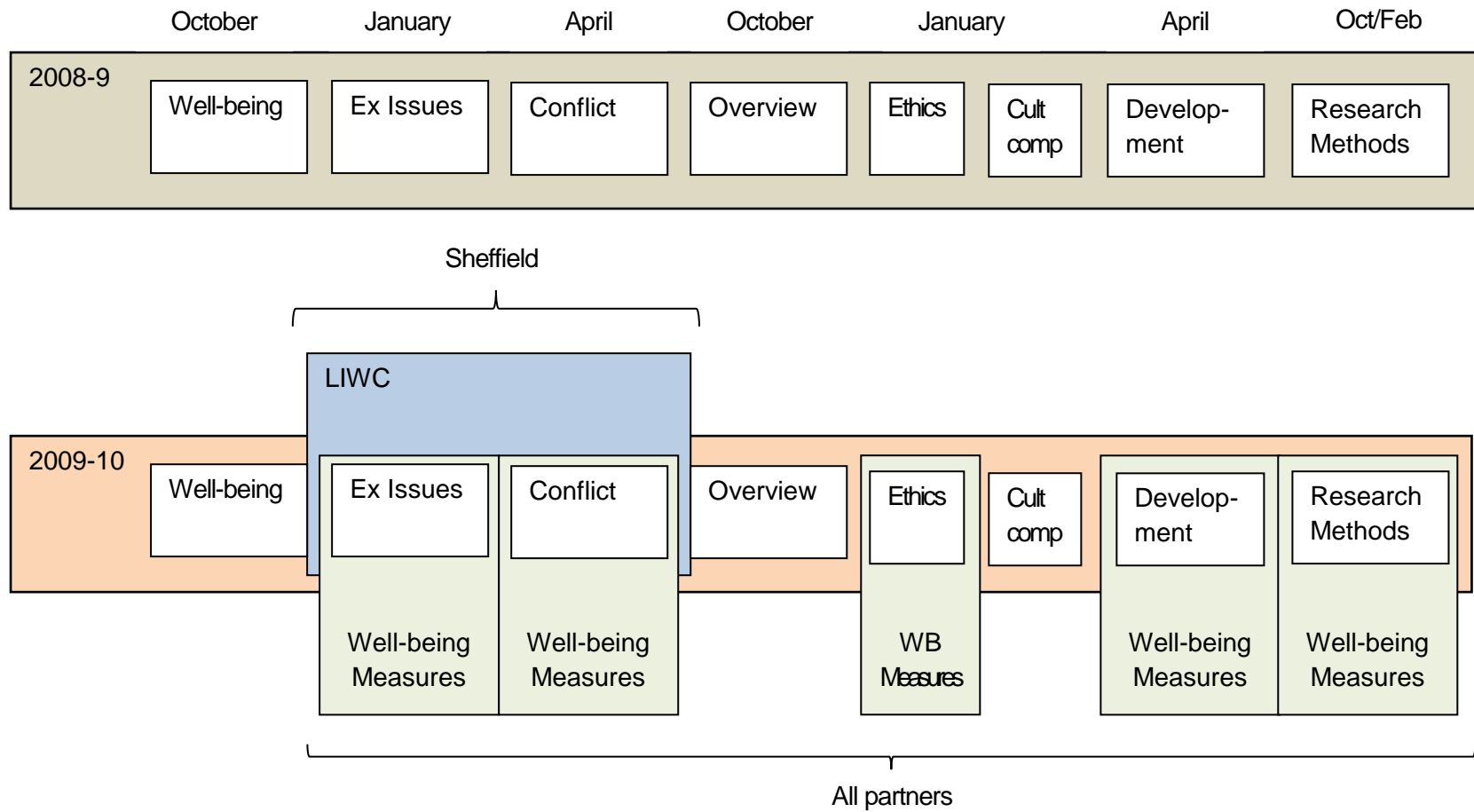
Figure 6 - Data collection of LIWC and Well-being measures during 2008-10
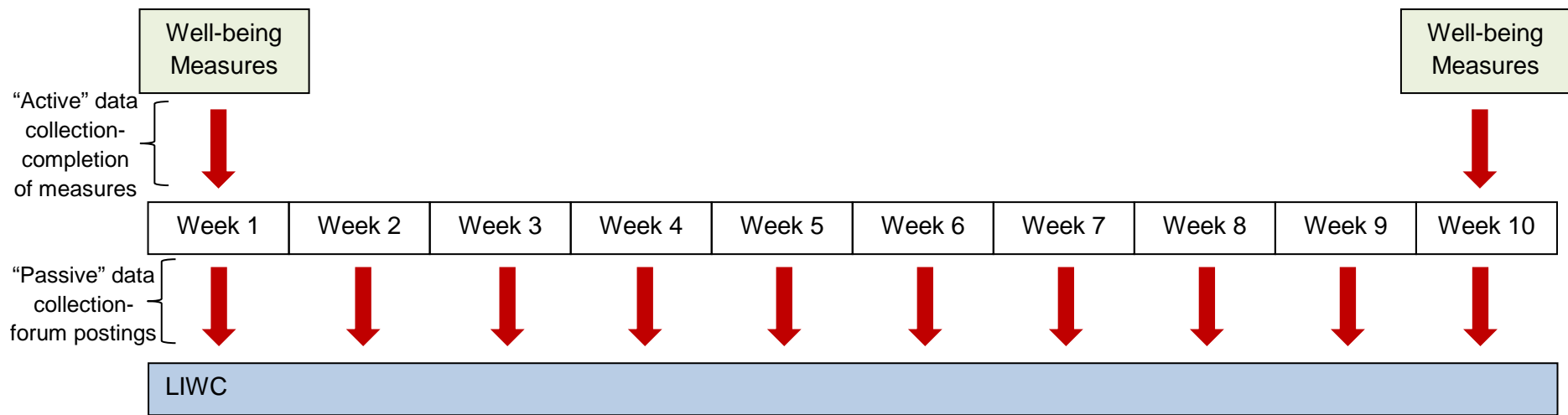
Figure 7 - Data collection of LIWC and Well-being measures during a module

3.2.5.2 Data collection

Data was provided through postings to discussion forums. The process of preparing data in this way was extremely work intensive, as discussion forums threads were mined individually for text from individuals. Each individual's posting, at any point in either week 1 or week 10 of the module, was copied and pasted into a text file, and these were grouped by week, tutorial group and module before being analysed in batches by LIWC. This was then copied and pasted into text files for batch analysis by the LIWC.

3.2.5.3 Analysis

The LIWC provides data on the following:

1. total word count
2. words per sentence
3. percentage of words captured by the dictionary
4. percent of words longer than six letters

along with the following:

- 22 standard linguistic dimensions (e.g., percentage of words in the text that are pronouns, articles, auxiliary verbs, etc.)
- 32 word categories tapping psychological constructs (e.g., affect, cognition, biological processes)
- 7 personal concern categories (e.g., work, home, leisure activities)
- 3 paralinguistic dimensions (assents, fillers, nonfluencies)
- 12 punctuation categories (periods, commas, etc.)

For LIWC scores, change scores were calculated, as with well-being measures, by examining differences between week 1 and week 10 scores.

3.2.5.4 Limitations

The major limitation with the use of the LIWC was the burden of collating and categorising the discussion forum postings in a format appropriate for analysis by the LIWC. This could be addressed by adopting a learning analytic approach whereby the discussion forum data could be automatically harvested for LIWC analysis. It could have been interesting to analyse other sources of data as well as the discussion forum, e.g. to compare the language used in the forum with that used in the chatroom, and in any private messages or emails. But the difficulty in gathering chatroom data from a separate archive, then manually extracting each participants' language from that session, before analysing with the LIWC, precluded it from analysis.

There were also limitations across the partnership in terms of how discussion forums were utilised in the teaching, and thus on the ability to access discussion forum data from different implementations of the course. It would have been interesting to analyse the different discussion forums for evidence of whether the differing pedagogical approaches had an effect on the language being used. A further limitation was that I was not able to undertake the work of organising non-English language discussion forum data. The LIWC does have French and Dutch dictionaries, so if the data could have been prepared appropriately, indeed if a learning analytic approach could have been implemented, it could have been analysed by LIWC and included in the final analysis.

3.2.6 Study 3 - Qualitative interviews

The final element in this thesis is a qualitative exploration of the role of emotions in e-learning, and this was motivated by the desire to arrive at a deeper understanding of the student experience. The obvious sample to approach for participants was students who had participated in the CEP project, as they had had recent experience of an e-learning programme (where emotional content formed an explicit component of their learning), and there was other data already available on their emotional experience. Qualitative interviews were intended to give voice to the student experience, and enable corroboration (or otherwise) of the results of earlier studies. Qualitative research was an appropriate method to use here, as it "seeks understandings of specific situations and communicates that understanding through description" (Bradley, 1993, p.438).

3.2.6.1 Sampling

Only students formerly registered on the MSc in Psychotherapy Studies at the University of Sheffield were considered for inclusion in this part of the research. Students from Belgium and France were not considered, as there would potentially have been language barriers, and contact details were not easily available for them; students from NSPC could have been included and this would have increased validity of findings by increasing the number of participants who were clinicians. At the point when recruitment for the interviews began (July 2013), 66 of the ex-students (n=137) were both contactable via a personal email address through University of Sheffield records *and* completed their studies between 2011 and 2013. The figure of 2 years was chosen as a cut-off as it provided a reasonable number of ex-students to approach - any shorter than this, and the number of potential participants might have been too low (given that it was not possible to estimate what the response and acceptance rates would be); any longer than this, and it would have potentially been difficult

for them to recall their experience. Of these 66 potential participants, 39 were located within the UK, so could potentially be interviewed face-to-face; 27 were located outside the UK, so could be interviewed by telephone/video. To ensure that students were happy being approached via their personal email addresses, the initial approach to the 66 eligible students just outlined the PhD research in very brief terms, and asked whether they were interested in finding out more (see Appendix XVI). Thirty-four responded (32- yes; 2 no) giving a response rate of 52% and an acceptance rate of 48%. This was relatively low, but not surprising given that the participants had finished their studies some time ago. Those 32 were then sent a further email with Information Sheet and Consent form (see Appendix XVII). Because of the anticipated length of time taken to undertake, transcribe and analyse interviews, a first batch of five were initially contacted for interviews. When selecting them, more recent students (within the previous year) were prioritised for initial inclusion; a second batch of five was contacted once the first interviews had been integrated into the thesis. Interviews were arranged until the analysis reached "saturation point" after 10 participants - see p.92. So of 66 potential interview participants, the final number was 10, giving a participation rate of 15%. Given this relatively low number, all of those agreeing to participate were interviewed, and it was therefore not possible or desirable to select a sample based on demographics or other relevant characteristics. Fortunately, there was a good degree of variation in those who agreed to participate. Of the 10 participants, seven were female and three male; ages ranged from 35 to 63, with the average being 50; five were based in the UK and five overseas; three were interviewed in person, four online and three by telephone; two were non-therapists and eight therapists; and eight spoke English as a first language, with two as a second language:

Participant	Gender	Age	Location during study (UK or overseas)	Country of origin	English as 1st or 2nd language	Background (therapist or non-therapist)	Location of interview (in person or online)
1	Female	55	Overseas *	UK	First	Non-therapist	In person
2	Female	42	UK	UK	First	Therapist	In person
3	Female	35	UK	UK	First	Therapist	In person
4	Male	36	Overseas	Australia	First	Non-therapist	Online- Blackboard
5	Male	47	Overseas	Rep of Ireland	First	Therapist	Telephone
6	Female	57	UK	UK	First	Therapist	Telephone
7	Female	53	Overseas	Switzerland	Second	Therapist	Online- skype
8	Male	63	UK	UK	First	Therapist	Telephone
9	Female	59	Overseas	India	Second	Therapist	Online- skype
10	Female	53	UK	UK	First	Therapist	Online- skype

* interview conducted in UK during visit home

Table 14 - Demographics of first group of interviewees

It was not possible to find participants to cover all combination of categories, e.g. there was no male, non-therapist, living in the UK, and no male therapist living overseas. But the demographics of the participants did reflect, broadly, the demographics of the student cohort as a whole, with roughly equal numbers from UK and overseas, with more women than men, and more therapists than non-therapists. The sampling procedure could be therefore described as a "convenience sample", as the University of Sheffield students were easiest to reach, and a "volunteer sample" in that whilst all University of Sheffield registered students could potentially provide data, only those ex-students who volunteered were interviewed (Teddlie & Yu, 2007), and in the final event, only 10 of those volunteers were required.

A consideration here is the extent to which the sample is representative in terms of their experience of emotions on the e-learning programme. There was no *a priori* method of discerning this, and therefore no basis for any kind of purposive sampling - the possibility remains that only those who were enthusiastic about their experience wanted to participate in the research, which would potentially provide a biased sample. Attempts were made to safeguard against this - the information provided to potential participants made it clear that all views about the role of emotions would be considered, and this was further emphasized, once participants had consented to take part, in the information given to them prior to the interview itself. The research design itself, using a narrative approach to the interview, and with an inductive/CGT approach coming from an ethnographic frame, along with a reflective awareness of issues raised by my multiple roles, was designed to allow participants to speak freely about their experience, and to allow me to access issues that were not so easy to discuss openly.

There is debate within the literature as to what constitutes an adequate sample size for qualitative work, and how these standards apply to mixed methods research. Whilst quantitative analysis usually encompasses a measure of significance, which is affected by how many pieces of data are being analysed (a direct result of sample size and response rate), qualitative techniques do not incorporate significance levels in the same way, and tend to invoke the concept of "saturation":

> "Qualitative samples must be large enough to assure that most or all of the perceptions that might be important are uncovered, but at the same time if the sample is too large data becomes repetitive and, eventually, superfluous. If a researcher remains faithful to the principles of qualitative research, sample size in the majority of qualitative studies should generally follow the concept of saturation (e.g. GLASER & STRAUSS, 1967)—when the collection of new data does not shed any further light on the issue under investigation."

<div align="right">(Mason, 2010)</div>

Referring to mixed methods (MM) research, Teddlie and Yu note that:

"Researchers often have to make sampling decisions based on available resources (e.g., time, money). Researchers conducting MM research sometimes make a compromise between the requirements of the QUAN and QUAL samples in their study, which we call the representativeness/saturation trade-off. This trade-off means that the more emphasis that is placed on the representativeness of the QUAN sample, the less emphasis there is that can be placed on the saturation of the QUAL sample, and vice versa."

(Teddlie & Yu, 2007, p.86)

This trade-off has been evident in the current research, where the number of participants, particularly in the qualitative interviews, was lower than anticipated. The limiting factors in recruitment were participants' willingness to complete the outcome measures, my ability to work with the huge amounts of online text that was analysed by the LIWC, and the work involved for me in undertaking, transcribing and analysing the qualitative interviews. However, there did appear to be saturation in terms of coding to themes - as the interviews progressed, the number of new insights diminished, to the point where the final couple of interviews, whilst still supplying new and relevant information, did not yield new themes or major diversions from previous findings.

3.2.6.2 Data collection

Interviews were conducted either face-to-face at a place of the participant's choosing, via telephone, or online. Face-to-face interviews were recorded using an encrypted audio recorder, then transcribed by me at a later date. The first online interview was undertaken using Skype, and screencasting software was used to capture both the audio and video; unfortunately, the file sizes during recording grew so large that the hard drive on my PC kept filling up and terminating the recordings. In the end, the amount of useable data captured from the interview was small, and insufficient to allow transcription and analysis of the participant's data. This interview was not useable, and data were excluded from the analysis, and subsequently deleted. The participant was contacted by email to inform him of the situation, and he was informed that he would be contacted for another interview if required; in the event, there were sufficient participants and he was not contacted again. The interview did serve as a pilot of the approach, and enabled me to reflect on the process of undertaking interviews with someone not physically present; it also enabled me to try out the introductory text and interview prompts (see below) and to feel confident that they were useful in initiating and maintaining the dialogue in helpful ways. The next online interview – with Andrew - was carried out via Blackboard Collaborate, a virtual classroom which has been enabled as part of the University of Sheffield's institutional VLE (Blackboard). This was more stable, and the output was rendered into a .wav file which was then available for transcription and data

analysis. Subsequent interviews were carried out via skype or telephone. In both cases, encrypted audio recording devices were used, then audio files transcribed for analysis. In all cases, interviews lasted for between 40 and 60 minutes – some participants naturally covered all the relevant ground more quickly, and were satisfied that they had said all they wanted to in a shorter time than others, who gave longer answers and were also interested in talking about more diverse issues.

For conducting the interviews, I deliberately refrained from imposing too much structure on the interaction, instead starting with a restating of the research question, and giving the participant the freedom to start answering this question in any way that they wished by inviting them to "tell their story". It was thus closest in spirit to the narrative interview (NI) which is an unstructured in-depth interview which has specific features (Jovchelovitch & Bauer, 2007). The NI attempts to get away from the question-response mode and the practice of the researcher imposing structure by selecting the topics, the order of questions and how these are worded. The interviewer's influence in NI is therefore minimized. I did use a list of prompts (if required) to remind me of relevant areas and topics for investigation. This list was not seen by participants and only made known to them as they were spoken aloud by me (if that was required). The question of whether the interviews should be changed as they went along (in terms of prompts) in response to emerging findings, or should remain the same, was considered in supervision. It was decided that whilst in general, each interview would start in the same way, with an invitation to tell the story of emotions and e-learning, and proceed using the same set of prompts, there was also scope to take account of previous interviews (and ongoing analysis) by bringing in new ideas or insights if relevant - this accords with a constructivist approach to GT. It also acknowledges that, rather like a psychotherapy interview, there is some awareness of roles that people are playing (interviewer, interviewee) and accompanying expectations; also that there are pre-existing ideas on both sides, and that the interviewer has themes emerging from each successive interview. In terms of research design, I could relate this approach to my own training in a person-centred counselling approach, and the likelihood that participants would be comfortable with this way of interacting.

3.2.6.3 Analysis

Having undertaken the first three interviews, these were transcribed into Word documents and there then began a period of "initial coding" (Charmaz, 2014) with NVivo, which involved simply going through the first transcript and using NVivo to create nodes and code text to these nodes. Nodes were coded at the most specific level that was meaningful but which still

left room for other pieces of text to be coded to that same node. Having completed this analysis for one transcript, some of these nodes were then put into groups - and this began naturally to form a hierarchical structure. In total, 144 nodes were created, containing 383 references with groups of nodes nested in up to 3 layers. After guidance in supervision, it was felt that this approach was too specific, and may have been done in a rush to impose relationships on the text in a way that was not helpful. For example, of the top level nodes:

- Communication
- Emotions
- Engagement with learning
- Modules
- Engagement with peers
- Engagement with tutor
- Life outside learning
- Online environment
- F2F course
- INT (referring to significant input from Interviewer)

some were descriptions of what was happening, (Communication, Engagement with learning) whilst others were descriptions of content areas and context (Emotion, Modules). The top level nodes were arrived at instinctively, which has merit, but without any clear guiding principles, and this resulted in a set of disparate categories which were difficult to compare. In reflecting on this, the coding and analysis of qualitative data is a skill, and one which needs to be learned like any other; it is entirely predictable that as a novice to this area, I would make some mistakes, and that as experience was gained, so - through trial and error - would confidence and skills develop in coding in the most useful way for this research question and data set.

Therefore the second transcript was coded via a different approach - line-by-line coding in NVivo, with nodes labelled as "activity words", often using a segment of the text itself as a title, e.g. the line of text

"- she was going through so that actually got me over the hump of thinking 'Ohh, I did want- '"

was coded as "getting over a hump". This approach was designed to disrupt the process of jumping to conclusions. However, the practice of using actual text for the node title resulted in a proliferation of nodes, many of which were very similar but differed slightly - I did not refer to previous coding, as I went through the second transcript, in order to avoid the possibility of being influenced by what had gone before. This process resulted in 433 codes (all at the same level, i.e. not in a nested format), which was clearly an unmanageable number of codes. It appeared as though I was making the mistake of confusing categories ("a collection of similar data sorted into the same place") and themes ("a meaningful

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"essence" that runs through the data" (Morse, 2008).

Having compared the results of the first two initial analyses, a decision was taken for the third transcript to proceed with line-by-line coding, but to be more selective in how the nodes were created. The resultant number of 138 nodes was more manageable. A fourth transcript yielded 59 nodes, which suggests that either the transcripts were progressively less rich (unlikely), that I was encountering repetitions of nodes or that my own coding process was becoming more focused. The first run through of 4 initial transcripts yielded 740 nodes, with none coming from all 4 interviews, only 3 coming from 3 interviews, and 44 coming from 2 interviews. So there was clearly an issue with my coding of being overly specific, and not choosing categories that would easily apply to other interviews. This was, I imagine, borne of an anxiety not to miss the complexity of interviewees' views through adoption of categories that were too broad. However, this led to an overly complex analysis, with unworkable numbers of categories. A simple re-reading of the transcripts confirmed that there was a significant amount of common ground and repetition across the interviews. Based on this, I embarked on a process of consolidating categories, and where necessary, changing the titles of nodes to allow for merging. This allowed for limited reduction in nodes (from 740 to 613) although the limitations of the software made it difficult to work with such large numbers of nodes to effectively reduce them, e.g. even viewing large numbers of nodes on one screen in order to compare them was problematic.

The next stage, in accordance with Charmaz's approach, was to undertake focused coding. She comments about focused codes, "These codes appear more frequently among your initial codes or have more significance than other codes… This type of coding condenses and sharpens what you have already done because it highlights what you find to be important in your emerging analysis" (Charmaz, 2014, p.138). With my research question in mind, I chose to concentrate, in my focused coding, on the ways in which the data spoke specifically about the role of emotions, without ignoring other content emerging from the data. I also chose not to purse either axial coding (Strauss & Corbin, 1990) or theoretical coding (Glaser, 1978), trusting that the two levels of analysis (line-by-line coding and focused coding) would provide sufficient rigor and depth of analysis. It might have been possible, in retrospect, to use codes relating to the background studies, thereby making stronger links between this early exploratory work and the interview data under consideration here; this would have been a further move away from a GT approach to the interview data, and it is not clear what benefits this would have conferred on the analysis.

This focused coding, looking for emotional coding, produced a small set of nodes which grew iteratively, with each added participant, until there were 11 nodes, which encompassed all the focused coding from the first 10 participants and which described either the most

salient emotional experience being described, or in a couple of cases, the process whereby a mixture of emotions are processed:

a) Anxiety
b) Engagement with content/process
c) Connectedness
d) Existential challenge
e) Fun/humour
f) Emotional disclosure
g) Shame
h) Isolation
i) Regret/sadness
j) Frustration/anger
k) Satisfaction/pride

These nodes or themes constitute the headings in section 4.3 where qualitative data are presented.

Towards the end of the coding process, data were taken to supervision for discussion, and it became apparent that new categories were not being added, and that all the material was being coded under existing categories. This was an indication that the analysis was approaching "saturation" - Charmaz suggests that categories are saturated "when gathering fresh data no longer sparks new theoretical insights, nor reveals new properties of these core theoretical categories" (Charmaz, 2014, p.213). Thus the final set of participants comprised 10 ex-students, who were given pseudonyms as follows:

P1 – Jo
P2 – Sarah
P3 – Elizabeth
P4 – Andrew
P5 – Shaun
P6 – Rachel
P7 – Michelle
P8 – Charles
P9 – Keri
P10 – Felicity

It was notable that most participants recounted their experience of emotions in chronological order, and so the order of nodes shown above is reflective of their emotional journey through their learning, with early experiences of anxiety, moving on to an often excited engagement with their learning, and a sense of connectedness, and so on - there will be more consideration of "learner journeys" in the "Discussion" - section 5. When deciding on these nodes, as far as possible the categories are mutually exclusive, although there could be

some overlap between, for example, anxiety and emotional disclosure, or anxiety and existential challenge. Whilst presenting the line-by-line coding in its entirety in the Results section would not be possible, or useful, the most relevant results of the focused coding are presented in the "Findings" section 4.3.

3.2.6.4 Limitations

Several limitations with the student interviews emerged. Firstly, given pre-existing relationships between myself as the interviewer and the ex-students/interviewees, there is the possibility that students were unduly influenced in their responses, e.g. they may have withheld criticism of the course, or of staff members, for fear of causing upset or offence. Hopefully the openness of the interviews, and participants' status as ex-students, gave them the freedom to speak their minds. Another limitation was the number of participants, which ideally would have been higher, thus giving greater confidence that "theoretical saturation" had been reached. As it was, difficulties in making contact with ex-students, and the amount of work involved in undertaking and transcribing each interview, meant that a pragmatic decision had to be taken, in consultation with my supervisors, and given that the latter interviews provided confirmation of coded themes, and increasingly fewer new ones, it was possible to be reasonably confident that subsequent interviews would not have provided hugely differing views, although this remains a possibility.

The idea of piloting the interviews was not one that I considered, and this was a shortcoming in that a pilot would have given me the opportunity to test out the technical aspects of capturing interviews (which failed in the first attempt) and the validity of the semi-structured approach, including the prompts I had written. In the event, the first failed interview did act as a pilot for this latter aspect, and I took confidence from the fact that the first one elicited lots of relevant data that the approach was suitable for use with subsequent participants.

One of the potential limitations of the research design, and therefore the study as a whole, was not having a fully triangulated data set - not all those participants who were interviewed also provided data from outcome measures, nor did all interviewees participate in the particular discussion forums which were analysed using the LIWC. Similarly, not all those who gave data on outcome measures were interviewed, or provided LIWC data, etc. This is a reflection of different sampling strategies - volunteer sample for the outcome measures (participating students from all partners), sampling special or unique cases for the LIWC (only those Sheffield students who had provided outcome measures) and volunteer sample for the interviews (only ex-students from the University of Sheffield). This sampling protocol arose in an attempt to achieve triangulation, and it would have been ideal to have the same

set of participants giving data to all three arms of the study. In reality, this was not possible due to the timing of data collection, and the difficulties in obtaining outcome measure data from participants - there is a burden involved in completing measures. As a result of some of these issues, numbers across the different arms of the study were relatively small (124 for outcome measures, 22 for LIWC analysis and 10 for interviews,), and it could be argued that a larger data set, along with greater resources to undertake interviews, transcription and analysis, would have been preferable.

3.2.7 Integration

i. Describe where integration has occurred, how it has occurred and who has participated in it

O'Cathain et al describe three techniques for integrating data in mixed methods studies, namely:

- Triangulation protocol
- Following a thread
- Mixed methods matrix

(O'Cathain, Murphy, & Nicholl, 2010)

The integration occurring in this study is best described as the first, triangulation protocol, where data were collected and analysed separately to create three sets of findings, which were then combined in a final integration phase - this is described in <u>section 5.1.4</u> - "Triangulation protocol" section of the "Discussion" where the relative contribution of the three studies to answering the research question(s), and the extent to which they corroborate in this or disagree with one another, is discussed. Although the quantitative analysis was undertaken before the qualitative interviews, for the purposes of reporting on the CEP project, the results of this did not influence the qualitative interviews, except for providing me with some early indications of the value of these methods (with results from the outcome measures and LIWC being inconclusive). This triangulation process makes it possible to start considering *meta-themes* which cut across the various findings being considered, regardless of the methods used (Farmer, Robinson, Elliott, & Eyles, 2006).

ii. Describe any insights gained from mixing or integrating methods

Mixing methods has provided insights into the question of which methods were most effective in detecting and measure emotions in online learning in the Psychotherapy Studies programme; indeed, using both qualitative and quantitative approaches has been integral to my attempts to answer this. In terms of the role of emotions in this learning, mixing the methods has also been important, as the experience of students as captured by outcome measures has not been matched by the experience as measured through linguistic analysis,

and it is really the qualitative interviews where it's been possible to understand what the role of different emotions might be. This is discussed in more detail in the following sections.

3.2.8 Validation criteria

In any research, the issue of assessment criteria is a vital consideration. What qualities are you looking for in your research? How do you know it is of value (to yourself and others)? How does it compare to other research? For the current study, should we consider some assessment criteria in relation to purely educational research or, given the emphasis on mental health and well-being, should we use criteria developed for psychology or social science research? Alternatively, should we look for criteria developed for the type of analysis undertaken, e.g. for the qualitative element of this research, do we consider only those criteria that have been used in inductive/CGT analyses?

There is an abundance of potential assessment criteria candidates, and this is summarized by O'Cathain (2010) who notes that for quantitative research in social policy research in the UK, the criteria of *validity, reliability, replicability* and *generalizability* were suggested by Bryman and colleagues in 2008, with the addition of *understandability, transparency* and *methods appropriate to the research question* added by social researchers (Bryman, Becker, & Sempik, 2008). Reaching consensus on criteria for qualitative research has been much more problematic, but the criteria for ensuring trustworthiness in naturalistic inquiry proposed by Lincoln & Guba are probably the most widely accepted: *credibility, confirmability, transferability* and *dependability* (Lincoln & Guba, 1985). Verification of the research findings by "member checking" with research participants is an important key strategy for ensuring credibility. As O'Cathain (2010a) comments, "Social policy researchers in the United Kingdom added the following to these - *transparency, relevance to users*, and *reflexivity* (Bryman et al., 2008)" (O'Cathain, 2010, p.534). So from this brief review, there are 13 possible criteria for use in this thesis, even before considering a specific set for mixed methods research, where O'Cathain suggests that three possible approaches can be used:

- the generic approach (where mixed methods research is considered as just another approach, and all research can be assessed using the same methods/tools)
- the individual components approach (where each component can be assessed with regard to criteria relevant to that methodology)
- the mixed methods approach (where criteria are developed specifically for mixed methods studies) (O'Cathain, 2010, p.534-6)

Perhaps not surprisingly, the community of mixed methods researchers tends to favour the latter, specific approach, and an example of a tool designed to address this is the Mixed Methods Appraisal Tool (MMAT) which was "designed to appraise the methodological

quality of the studies retained for a systematic mixed studies review, not the quality of their reporting (writing)" (Pluye et al., 2011). This is shown below, completed for the current research, to give an assessment of methodological strength (see also O'Cathain's more extensive framework in <u>Appendix XIX</u>):

Types of mixed methods study components or primary studies	Methodological quality criteria (see tutorial for definitions and examples)	Responses			
		Yes	No	Can't tell	Comments
Screening questions (for all types)	• Are there clear qualitative and quantitative research questions (or objectives*), or a clear mixed methods question (or objective*)?	✓			A clear mixed methods question
	• Do the collected data allow address the research question (objective)? E.g., consider whether the follow-up period is long enough for the outcome to occur (for longitudinal studies or study components).	✓			
	Further appraisal may be not feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.				
1. Qualitative	1.1. Are the sources of qualitative data (archives, documents, informants, observations) relevant to address the research question (objective)?	✓			
	1.2. Is the process for analyzing qualitative data relevant to address the research question (objective)?	✓			
	1.3. Is appropriate consideration given to how findings relate to the context, e.g., the setting, in which the data were collected?	✓			
	1.4. Is appropriate consideration given to how findings relate to researchers' influence, e.g., through their interactions with participants?	✓			
2. Quantitative randomized controlled (trials)	2.1. Is there a clear description of the randomization (or an appropriate sequence generation)?				
	2.2. Is there a clear description of the allocation concealment (or blinding when applicable)?				
	2.3. Are there complete outcome data (80% or above)?				
	2.4. Is there low withdrawal/drop-out (below 20%)?				
3. Quantitative nonrandomized	3.1. Are participants (organizations) recruited in a way that minimizes selection bias?				
	3.2. Are measurements appropriate (clear origin, or validity known, or standard instrument; and absence of contamination between groups when appropriate) regarding the exposure/intervention and outcomes?				
	3.3. In the groups being compared (exposed vs. non-exposed; with intervention vs. without; cases vs. controls), are the participants comparable, or do researchers take into account (control for) the difference between these groups?				

	3.4. Are there complete outcome data (80% or above), and, when applicable, an acceptable response rate (60% or above), or an acceptable follow-up rate for cohort studies (depending on the duration of follow-up)?				
4. Quantitative descriptive	4.1. Is the sampling strategy relevant to address the quantitative research question (quantitative aspect of the mixed methods question)?	✓			
	4.2. Is the sample representative of the population understudy?	✓			
	4.3. Are measurements appropriate (clear origin, or validity known, or standard instrument)?	✓			
	4.4. Is there an acceptable response rate (60% or above)?			✓	Response rate varies across partners for outcome measures; not a valid question for two other methods
5. Mixed methods	5.1. Is the mixed methods research design relevant to address the qualitative and quantitative research questions (or objectives), or the qualitative and quantitative aspects of the mixed methods question (or objective)?	✓			
	5.2. Is the integration of qualitative and quantitative data (or results*) relevant to address the research question (objective)?	✓			
	5.3. Is appropriate consideration given to the limitations associated with this integration, e.g., the divergence of qualitative and quantitative data (or results*) in a triangulation design?	✓			
	Criteria for the qualitative component (1.1 to 1.4), and appropriate criteria for the quantitative component (2.1 to 2.4, or 3.1 to 3.4, or 4.1 to 4.4), must be also applied.				

*These two items are not considered as double-barrelled items since in mixed methods research, (1) there may be research questions (quantitative research) or research objectives (qualitative research), and (2) data may be integrated, and/or qualitative findings and quantitative results can be integrated.

Table 15 - Mixed Methods Appraisal Tool (MMAT) criteria

An integrated approach has been taken to presentation of the quantitative and qualitative data, i.e. they are reported in the same chapters alongside one another, rather than in separate "Methods", "Findings" and "Discussion" chapters (O'Cathain, 2010). It is important to note that only the last of the three sub-sets of data was created specifically for this thesis. All students gave consent that their online data might be used in this research, and they were aware that this included postings made to the course as well as their levels of activity and other data that their participation in the course would provide. Separate consent was sought for the qualitative interviews. Whilst it is more obvious to participants that text entered into a forum might become the subject of analysis, it is less obvious that any online activity is recorded in a database and therefore also provides data potentially useful to the researcher. For example, the frequency of online activity emerged as an important factor in the following analysis. Students were informed by tutors of the minimum requirements (where these existed) for posting to the discussion forum or attending the chatroom, so they had an awareness that such data would be collected both by tutors and by myself. And this comes within the context that increasingly, internet users are aware that all their actions online can potentially leave traces which can later be linked to their own identities. However, it may be less apparent to participants that each visit to a webpage (regardless of whether a response was entered or not) would also leave a "trace" in the database which could be accessed and analysed by me. Therefore some of the data collected might be thought of as "nonreactive", i.e. "In nonreactive data collection, persons under investigation are usually not aware that they are being studied, so that their behaviour is not affected by the data collection procedure". Janetzko goes on to say that:

> "Combining nonreactive data collection with other kinds of data gathering in order to study the same phenomenon, i.e. using methodological triangulation, ideally enhances confidence in the research findings."

(Janetzko, 2008, p.162)

The use of nonreactive data collection can be justified in this case as it enabled the research to capture a useful quantitative measure of online activity, which is a very important consideration in the context of emotion and learning - do those students who are more active in a module display different kinds of emotional engagements with the course materials and with members of the learning community? Is there any relation between the number of visits a student makes to the course materials and their module mark, or their levels of satisfaction with education outcomes? However, concerns remain about the extent to which research participants giving consent for nonreactive data to be gathered are aware of the continual and comprehensive nature of the data collection, and informed of what is being done with the data they provide. Janetzko comments:

> "nonreactive data by their very nature raise serious ethical questions. Nonreactive data collection means hidden data collection. This in itself may be considered a breach of privacy."

<div align="right">(ibid, p.170)</div>

To minimize the risk of harm where nonreactive data are being harvested from online learners, it is good ethical practice to remind students at regular intervals, in an appropriate way, that this process is taking place, what the data are being used for, and what will happen to the data after analysis.

The utilization of a large quantitative data set points to similarities with the approach known as "learning analytics". This is a relatively new area, where learning analytics is defined as "the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimising learning and the environments in which it occurs" (LAK11, 2011).

The usual stages involved in an online ethnography or, as Kozinets puts it, a "netnography", are shown below (Kozinets, 2009, p.61):

Step 1

Definition of Research Questions, Social Sites of Topics to Investigate

Step 2
Community Identification and Selection

Step 3
Community Participant-Observation (engagement, immersion) and Data Collection (Ensure Ethical Procedures)

Step 4
Data Analysis and Iterative Interpretation of Findings

Step 5
Write, Present and Report Research Findings and/or Theoretical and/or Policy Implications

Figure 8 - Simplified flow of a netnographic research project

In the current research, the data set was gathered before the research question was defined. And the "Community Identification and Selection" were rather different - students enrolling on the course were in one sense self-selecting; they also then went through the University's admissions procedures; finally, they were given the opportunity to consent or otherwise to participation in the current research.

Step 1

Community Participant-Observation (engagement, immersion) and Data Collection (Ensure Ethical Procedures)

Step 2

Definition of Research Questions, Social Sites of Topics to Investigate

Step 3

Participant Selection
(Sampling of corpus of data)

Step 4

Data Analysis and Iterative Interpretation of Findings

Step 5

Write, Present and Report Research Findings and/or Theoretical and/or Policy Implications

Figure 9 - Amended flow of current research project

Kozinets summarizes the differences between face-to-face and computer-mediated social interactions (p.68) as *alteration* (the nature of the interaction is altered - both constrained and liberated - by the specific nature and rules of the technological medium in which it is carried), *anonymity*, *accessibility* and *archiving* (of conversations and data facilitated by the online medium).

3.3 Reflective statement

It is very important to reflect on my own role in the development and writing of this thesis. In this section, I will examine the motivations that led me to undertake the research, my prior experience of the role of emotions in e-learning in psychotherapy training, and the possibilities of prejudice in my choice of research question, participants, methods or analysis. I will also, in the latter part of this section, give a reflexive consideration of my role in and reaction to the production of data - given the topic of this PhD, it is appropriate to include an account of emotions afforded by the research process itself - and any ways in which this impacted on the research. Reflexivity is commonly described as "the process of a continual internal dialogue and critical self-evaluation of researcher's positionality as well as

active acknowledgement and explicit recognition that this position may affect the research process and outcome (Bradbury-Jones, 2007; Guillemin and Gillam, 2004; Pillow, 2003; Stronach et al., 2007)" (Berger, 2013, p.220). This process involves becoming the subject of the research, and being able to:

> "recognize and take responsibility for one's own situatedness within the research and the effect that it may have on the setting and people being studied, questions being asked, data being collected and its interpretation. As such, the idea of reflexivity challenges the view of knowledge production as independent of the researcher producing it and of knowledge as objective."
>
> (Berger, 2013, p.220)

Reflexivity should serve to monitor the researcher's involvement, and thereby enhance the accuracy, credibility and trustworthiness of findings, and therefore ultimately the quality and usefulness of the research. It will also, importantly, help to mitigate any abuse of differential power relations between researcher and participants. Of course, genuine reflexivity should be brought to bear throughout the entire process of a research endeavour, rather than only being considered as a "bolted on" section of a Methodology chapter; however, in the interests of coherence, reflexive considerations are indeed gathered together in this section, whilst I would contend that throughout the process, I was continually reflecting on my roles and relations to the students/participants and their data. And in common with Berger's experience of herself being an immigrant, and conducting research into the experience of immigrants, I considered myself as a member of the learning community, whilst undertaking research into community members' experiences. I was therefore offered three advantages Berger mentions in studying the familiar - "easier entrée, a head start in knowing about the topic and understanding nuanced reactions of participants" (Berger, 2013, p.223). This position of 'shared experience' meant that, like her, "I was better equipped with insights and the ability to understand implied content, and was more sensitized to certain dimensions of the data" (Berger, 2013, p.223). In the terms of one of my supervisors, I was able at times to use "clear-sighted intuition" (Tantam, 2014, personal communication) to inform decisions and analyses. Associated risks with multiple roles include "imposing own values, beliefs, and perceptions… and projection of biases (Drake, 2010)… the assumption of researcher's familiarity with participants' realities carries the dangers of participants withholding information they assume to be obvious to researcher and researcher's taking for granted similarities and overlooking certain aspects of participants' experience (Daly, 1992)" (Berger, 2013, p.224). The power relationship between myself and my participants was evident at times, and as will be described, when participants criticised the course, or e-learning in general, I found myself explaining or defending it, whilst simultaneously saying I wasn't going to defend it.

To consider firstly the context in which this research was undertaken, I was a staff candidate, and so completion of the PhD was at the same time a major factor in career progression and, paradoxically, a major distraction from the "day job" of running a PGT course and, increasingly, of taking on departmental responsibility in innovative teaching (including e-learning). During this period, several major life events occurred, including moving house, getting married, and having two children. The PhD has been interwoven into my daily existence in a way that was not always comfortable - an ever-present thread in my personal narrative, but one that was often associated with anxiety over my own ability to complete the task and to produce work that would stand up to external scrutiny. I am not unique or special in this regard, and indeed the process of carrying this task, at times a burden, at times a privilege, has itself been instructive, involving much personal learning and development.

The emotional flavour of the work can perhaps best be described as "astringent" (which derives from Latin *adstringere*, meaning "to bind fast"). It has always been possible to detect its presence in my daily existence, an ever-present flavour in the background, reminding me, in moments of rest and relaxation, such as are permitted by a young family, that there is always work to do, and that the Sisyphean task is not at an end. The job of steering the research, and documenting this through writing (both ongoing and retrospectively) has often felt like a grind, with only occasional instances of experiencing the flow of a creative endeavour. I interrupt this thinking with some theory, namely that of Csikszentmihalyi's flow model, whereby flow is characterized by being completely immersed or absorbed in an activity, and feels an energized focus, involvement and enjoyment (Csikszentmihalyi, 1990).

There were initially three criteria which must be met to achieve a state of flow:

- The activity should have clear goals and progress to add direction and structure
- The activity should have clear, immediate feedback to help negotiate changing demands and maintain state of flow
- There must be a balance between perceived challenges of task and one's perceived skills, to provide a sense of confidence in completing the task

<div align="center">(Csikszentmihalyi, Abuhamdeh, & Nakamura, 2005)</div>

By the nature of undertaking a long, slow piece of research, and writing this up over many months and years, it may be possible to achieve the first and third criteria, but more challenging to obtain the kind of immediate feedback needed to maintain flow, which in my experience appeared occasionally, once an existing or new idea took shape and I was absorbed into considering how to conceptualise and communicate it. In the periods where flow was not present (which is the majority), writing more commonly felt like a process of explaining and justifying what I did, with the ever-present imperative to use the "evidence

base" to substantiate my decisions; thus the work sometimes felt like gluing results and ideas together with references, with the research literature serving to disrupt any sense of a flow. It is only through an iterative process of rewriting and reshaping that I tried - as far as possible - to re-imbue the text with a coherent narrative, and a sense of flow, taking the reader from Introduction through to Conclusions.

The emotions afforded by the experience of conducting and writing up this research were many and varied, but centred around a mixture of excitement at thinking deeply about a topic I feel to be important, interest in the unfolding of the research data and analysis, and frustration and guilt at my own slow progress, along with a dose of anxiety - will I ever finish it? What would the shame of not finishing it feel like? Will I manage to capture the knowledge and experience accrued from being a tutor, immersed in the development and running of a course, in a coherent and convincing way? And will the pace of technological change mean that the world has moved on in the time it has taken me to do this? Crucially for my own well-being and progression, significant figures in my academic life provided consistent encouragement and support, at times directive (in a helpful way), with supervisors repeatedly and assiduously reminding me of the importance of making progress on the research, at times when I was only too ready to be distracted by other tasks. I have learned of my own propensity to avoid facing up to the difficult elements of the research, to be cowed by a fear of I know not quite what, and to justify to myself a lack of progress by citing other important and useful work. The truth is that other things will always appear and compete for my attention, if I let them.

If I may engage in a piece of pure self-analysis, it is clear from the above description that these emotions have had the role of both propelling the research forward, and at the same time holding it back, their particular admixture being commonly experienced as a reaction to external pressures and events - workload at the University, energy levels at home, moments of inspiration (often in transition from home to work to home). My "emotional trajectory" seems to be not dissimilar to those of the students whose experience I have been examining. And in our reactions to finally completing our travails, I may also follow in their footsteps, with the likelihood of short-lived feelings of elation, being subsumed by waves of relief before entering an anti-climactic slump. So I cannot help but assume - a dangerous step, but a very human one - that others feel the same in relation to their e-learning on the psychotherapy studies course (and beyond), that e-learners have felt both drawn into their studies and excluded from genuine communion with one another; that dissertation students have felt daunted by the size of their task and demoralised by the sense of isolation in facing it, whilst at the same time feeling enthralled by the revelation of their particular small piece of

new knowledge, and amazed at their ability to connect with others from very different cultural backgrounds and with very different levels of professional experience.

At various points, my own emotional reaction to the generation of data was relevant to the research and may have impacted upon it. This was most notable in the interviews, where my multiple roles as course director, tutor and researcher became evident during exchanges with participants/ex-students, and in a couple of cases, Jo and Elizabeth, this seemed most apparent. Participants sometimes commented on my role as a tutor, referring to me directly (by saying "you" in the interview), e.g.:

> Jo: Umm I remember asking one or two questions that afterwards I thought "Oh God, that's so embarrassing" but you didn't- nobody- you didn't make me feel awkward, nobody else on the course made me feel awkward about it, umm, so I found it a very comfortable environment.

Whilst it was reassuring to hear that a student had found my tutorial input helpful, these exchanges also made me feel somewhat apprehensive - what if an interviewee disclosed their dissatisfaction with my input? When this student recounted her experience on the "Existential Issues" module of forming very close bonds with her online peers, I was both interested in this, and somehow distanced, as I recalled the different group members, and some of the more difficult interactions that I had with individuals, and occasionally the group. Jo made reference to our relationships several times, e.g.

> Jo: All my courses were with you, as well, weren't they?
>
> INT: I believe so.
>
> Jo: You did Conflict, didn't you?
>
> INT: Yes, yeah.
>
> Jo: Yeah, with me. Yeah, umm, and that, that one was was OK.

If these comments caused any moments of apprehension for me, I hoped to contain these kinds of reactions, and not to let them impact on the course of the interview, or the data I was collecting.

There were points where Jo spoke about difficult aspects of her study, and an interpretation of my own response is that I attempted to rescue her, to make everything alright, e.g.

> Jo: … and I think that made me feel very uncomfortable umm a lot of- of the time in the course.
>
> INT: OK. So... that was umm a reflec- err a reflection that the course material kind of prompted you-
>
> Jo: Yes
>
> INT: - to think about-
>
> Jo: Yes

INT: - certain aspects of-

Jo: Yes, yes

INT: - your life.

I seem to be rushing to try and interpret, and possibly thereby contain or minimize, her unhappiness, and it is notable that I manage to elicit several "yeses" as my interpretation appears to be correct, and to meet the participant's need to be interpreted/understood. What would have happened if I had said nothing? What might she have said differently? After her next response, where she suggested that the group discussions were akin to group therapy, I seem to change tack, and ask a question which refers to a process issue. This could be interpreted as a sign of my own sense of unease as she moved towards talking about very deep material. Her response is indeed to move away from the personal, and towards a more controlled position:

Jo: If it had been me, I would not have said half the things that I said. I wouldn't have admitted to or discussed half the things that I umm discussed there. I would have found that quite difficult. Or I would have had to be very, very sure of of the group.

Soon after this, the participant recounts a subsequent experience of face-to-face learning on a clinical topic where she found the tutor to be rather didactic, and controlling, and she was much more reserved as a group member. She then contrasts this with my own input as a tutor:

Jo: … whereas I found with the online courses, I think you were very good at stepping back and we were the ones that were doing all the sort of the discussion-

INT: Mm

Jo: - what I think, what I thought you were very good at was umm summarizing I mean it's often you perhaps hadn't done- I don't mean done anything, don't mean you weren't there, but [laughs] hadn't made any comments for several days, and then you'd come in after four or five days and just summarize everything that was there, very succinctly, and I thought you were very clever at doing that…

I evidently feel compelled to discuss my own experience at this point- perhaps this tells of a slight discomfort in being praised that I then decide to rationalize her feedback, rather than staying silent and potentially appearing to bask in the glow of kind words:

INT: Mm, yeah. I mean, just to reflect I suppose on on my role, it was quite a conscious decision-

Jo: - Mm

INT: - to to let the group do its own thing-

Jo: Yes

INT: - a lot of the time

Jo: Yeah, yeah

INT: - umm and to have a minimal err impact really…

After this exchange, the interviewer recounts an experience where she acted like the tutor, and had to chivvy along her fellow group members to complete a group task.

There is one point where she becomes critical of the course, and myself. Having talked about how one module brought up lots of personal issues for her, she suggests I might have done more to help, although she does suggest her own solutions, and say it is not my remit, but nevertheless, some help would have been useful:

Jo: Yeah, so that- I think if there was one thing that I would want- if I was doing that again- I think I would want from you or from like whoever was running the course umm perhaps more guidance or err something along [inaudible] "this brings up a lot of stuff and what?" you know, "And now what do I do with it?"…

After some time, I felt the need to make a comment about my role, whilst suggesting I was not being defensive:

INT: Hmm. I think as a tutor, umm, there's a lot- and you know I, I said up front that I wasn't going to try to umm [inaudible] try and defend err-

Jo: Yeah

INT: - the role in a way, but just a reflection, it, it's often very difficult to know what's going on

Jo: Yeah, yeah course.

INT: - for students actually and umm you do end up kind of taking the group's temperature and sometimes you have a strong inclination that someone's struggling-

Jo: Mm

INT: - with something-

Jo: Mm

INT: - and that would probably be when I, when I might umm send a direct message

Jo: Mm

The student then picks up on the role of the tutor, and. I revert to short agreements with her:

Jo: Especially online. And also I think it's, it is a bit of a blurred line, isn't it, in two ways, it's a blurred line cos you're the, you're the tutor, you're not there as a therapist, you're there as a tutor but it's a tutor of a psychotherapy course, and, so maybe it's the content as well but I think all teachers do a bit of that anyway, don't they, you know, like I've said I do in an informal, but there is a fine line, and it's a fine line between... I dunno, asking someone if they're OK, intruding, I mean even when they're in front of you it's difficult to know sometimes what to say, how far to go-

INT: Yeah

Jo: - umm, what the other person wants, so... it's not really, not really a criticism of you, it's just like I'm just thinking about the, the role of the, the online tutor, particularly in this kind of course, I mean if it had been a course in, you know, history of the world or something, I, you know, I don't think that would be your role at all.

INT: Mm

Similarly, in the interview with Elizabeth, she put forward a number of views on the course which could have been considered critical. This can be seen in greater detail in the data shown in the Findings section 4 later. For example, she was uncertain about her own abilities, and this was mixed with feelings that maybe the course was not legitimate somehow, possibly too easy:

Elizabeth: Umm it actually, it, it actually felt when I started that umm, it was, it was too easy [laughs], too good to be true, so I wasn't, I wasn't really convinced until the assignment [laughs], that I was OK.

INT: OK, and so that- after that assignment, you thought "Right-"

Elizabeth: "I can do this"

INT: "I can do this"

Elizabeth: Yeah, from an academic point of view.

INT: Mm hmm.

Shortly after this, she comments about the commitment of fellow students:

Elizabeth ... and th-, there were certain people that I was interested to find out what they had to say, and- and others less so, but, sort of, I did feel obliged to read everybody's and contribute and encourage other people as, as they had with me. Umm, so you do feel... obliged to kind of make sure everybody feels involved even though even though you're not necessarily as interested in some ideas as much as others-

INT: Mm hmm

Elizabeth: - umm and they thought- I think, I think there were, there was one at least "slacker" who [laughs] was doing the bare minimum umm... that- it might have been the other course, that one, so you did feel like err "how are they getting away with this?"

Elizabeth commented about how the course felt more academic than personal, and went on to describe a tutor on a face-to-face course who she found abrupt and patronising. My next comment to her was intended as a summary of what she had said, to check I was understanding her position, but could be read as a plea to confirm that on the MSc in Psychotherapy Studies, the tutors did not act in a similar manner, something which Elizabeth immediately concurred with:

INT: So there's something important- for yourself as I'm sure for, for most students- about the relationship between the student and the tutor.

Elizabeth: Absolutely. And they- all the tutors on the MSc were fantastic and you could talk to them about anything from an emotional point of view or an academic point of view, that always felt completely comfortable to do.

INT: Mm

Elizabeth: So that's important. And respected the tutors cos knew that they were umm highly qualified to be doing what they were doing as well, and came across well online so, I think that's really important.

Towards the end of the interview, after I have suggested I've been through all the prompts I had, and thanked her for her time, and asked if there were any more thoughts to add, Elizabeth shares some thoughts on the course:

Elizabeth: Mm… umm, I- it's probably not a good thing to say but I kind of wondered when I'd finished it whether it would have been, umm, as easy to get the degree if I'd done it face-to-face?

INT: Right

Elizabeth: So I sort of felt- I don't know whether that's my own issues of because I've achieved it, it's probably easier to do [laughs] umm or it might have been the fact I've done a lot of hard work, I don't know, but I, I, it sort of- because it felt to me less difficult than my first degree-

INT: Right

Elizabeth: - so I did have that sort of wonder about if I'd have been doing that at the University, would I have had-

INT: Mm

Elizabeth: - found it so, not easy but more straightforward-

INT: Mm hmm

Elizabeth: - umm with the exception of the dissertation. That did feel like a completely different umm level altogether, the dissertation. It felt at times with some of the modules that you would have got through them umm fairly easily-

INT: Mm hmm

Elizabeth - with quite a low level of academic ability, whereas the dissertation… you know, you're not going to know your stuff, haven't you? Umm, so there was, there was that so, I don't know what emotion I would call that, maybe umm… I dunno, I was going to say "guilty" but that's the wrong [laughs] that's the wrong feeling, like "I've got away with something", I suppose

INT: Right

Elizabeth: I got away with having a Masters degree without… that's probably less valuable than someone who's done a face-to-face course, that's probably the most horrible thing I could say to you, isn't it? [laughs] but that's nonetheless how I kind of, sort of, felt about it and-

INT: Mm hmm

Elizabeth: I don't know whe- that might be more to do with me than about anything else, I don't know

INT: Mm

Elizabeth: I feel like I've just [laughs] stabbed you or something-

I immediately leap in to show that I have not been wounded by what could be considered to be an attack (it had not felt like an attack at the time):

INT: No, no, not at all-

Elizabeth: - a horrible thing to think.

At this point, I reiterate that I will not get defensive about eLearning - before going on to defend both the MSc in Psychotherapy Studies, and e-learning in general! Elizabeth is keen to show that she agrees with me, perhaps aware that she has evoked a defensive response:

INT: No… umm I mean I deliberately won't kind of get very defensive about e-learning, umm, just suffice to say that we, we have to kind of umm, err, map out all of the things that we're going to do-

Elizabeth: Mm

INT: - and match those to hours so umm, in the ideal world there shouldn't be any real disparity between umm an online experience and a face-to-face one-

Elizabeth: Yep

INT: - there's obviously some differences there but in terms of the amount of time that people are expected to put in-

Elizabeth: Yeah

INT: - they're supposed to be equivalent- now, whether they are in practice is another-

Elizabeth: Mm

INT: - another matter-

Elizabeth: yeah

INT: - umm, and obviously how students perceive that-

Elizabeth: Mm

INT: varies-

Elizabeth: Yeah

INT: - umm...

Finally, she puts forward a reason for her previous suggestion which feels like an attempt to rescue me:

Elizabeth: Plus the other thing to say is there's more- about 10 year if not more difference betw- since my one degree to the other umm and I spent a lot of time studying this subject before I did this Masters degree whereas I went into philosophy fairly cold-

INT: Mm hmm

Elizabeth: - so it was a massive- it was very, very difficult for me to do, to- to- umm to do the work so it's impossible to know, isn't it-

INT: Mm

Elizabeth: - umm and I've, I've been on certificate courses that felt like degrees and, you know, diplomas that felt like certificates, and I've done an awful lot of courses, and there's, there just tends to be, doesn't there, depends on how much you already knowledge you already bring to the course

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INT: Yeah

Elizabeth: umm, how comfortable you feel with the subject, and what you put into it yourself

INT: Mm

Elizabeth: - so... very difficult to compare one with the other, I would have thought.

INT: Yeah, yeah, true, yeah.

Following this exchange, I seem to want to say more, perhaps aware of a need to repair the relationship or control the dialogue. Elizabeth talks about students who seem to get by without doing much work, and I appear to be telling her what happens, and what she herself is feeling:

INT: - and those, you get those annoying people who never come to anything and then turn up and do a brilliant exam or-

Elizabeth: Yep

INT: - do a brilliant assignment and err, yeah…

Elizabeth: [laughs]

INT: So, I suppose there's always a range of err approaches to learning...

Elizabeth: Mm

INT: Umm, it sounds from your description of it, you were very much err wanting to engage as much as you could-

Elizabeth: Yeah

INT: - and, you know, that's partly feeling as though you've got your money's worth-

Elizabeth: Yes

INT: - but it's also partly about your approach

Elizabeth: Development

INT: - to life, really-

Elizabeth: Yeah, I guess so, yeah

INT: - and you've always got your head in a book and-

Elizabeth: Yeah [laughs]

Elizabeth then changes the topic by moving on to a section of dialogue where she praises the tutors. This feels to me like a way of making sure our relationship is intact after her previous suggestion of an attack:

INT: - you know that's kind of how you, how you enjoy engaging with a project is by kind of-

Elizabeth: And I think actually you get more value from tutors cos you get far more input from than you would in a full group setting because they've got to divide their time umm whereas if you're putting a lot into it and someone else isn't, then you're getting the rewards back from the

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tutors, they're commenting on your work, and the other, the other, the coasters aren't getting the input-

INT: Mm

Elizabeth: So umm I think the tutor time's probably, you get what you put into it a lot more.

INT: Mm

Elizabeth: - umm, that's how it felt anyway, I don't know- it did seem like the tutors were having to work a lot harder than they might have to do on a-... cos I mean, I've taught face-to-face courses myself, and you're there at the time, aren't you-

INT: Mm

Elizabeth: - and then you put it away till the next lesson, umm where it did feel like the tutors were in and out of the forums a lot and, doing a lot of work.

INT: Mm. Yeah.

Elizabeth: [laughs] You know, it did feel like they were working very hard, yeah. And they were available to contact as well if you needed them for anything.

INT: Mm

Elizabeth: I think… even mobile contact I think you were allowed, weren't you, so- I don't think I used them but I think if there was anything that was bothering me at any time I could have just-

INT: Mm hmm

Elizabeth: - contacted them if I was upset about something

I respond to this by returning to my previous justification of the difference in tutorial input that e-learners need:

INT: Mm. Yeah. Yeah I think there is a difference in terms of the kind of tutorial input that e-learners need-

Elizabeth: Mm

INT: umm… and, and that's reflected in the, the cost of running an e-learning course, you don't have to pay for your infrastructure

Elizabeth: No, that's right, mm

INT: - your buildings and… you have to pay for, you know, your downloads of your materials, of course, but actually a lot of the money goes towards the staff time and the tutorial input, umm, so yeah, they are different err, different beasts, in quite a few ways.

Elizabeth: Mmm… [inaudible]

I was quick (too quick?) to suggest that this was not the case, and hope that it was a genuine reflection when I said that there is a diversity of approaches to and experience of e-learning, and that it was certainly not everyone's ideal method of learning. Indeed, I hope that this thesis is an attempt to unpick exactly what the learner's experience is, and how it is that some people seem to flounder whilst others thrive. It was interesting to hear from someone who wasn't entirely at ease with e-learning, and who would prefer face-to-face engagement. Indeed, hearing about difficult experiences, and how emotions were

sometimes themselves a barrier to learning, or were evoked by challenges encountered during the learning, was vital for answering the research question fully.

As is apparent from the above, interview participants offered up views which were at times surprising (which shows that I may have pre-judged their experiences), and occasionally challenging, when criticisms of the mode of e-learning, course or role of tutor were made. Whilst resisting the temptation to make interpretations of students' feelings, my own reaction to these experiences at the time, recalled and elaborated upon in this section, revolve around the tensions inherent in my multiple roles as research assistant, tutor, course director and interviewer/researcher. As outlined in table 2, as research assistant/associate, I had a role in deciding what data to collect, and in overseeing its collection; I also helped to analyse this data for reporting purposes, and some of this is included in section 1.2. As tutor, I was responsible for guiding students through their learning as they generated some of the data analysed in this thesis; I also contributed to this myself, through discussion forum, chatroom and other online interactions. The tutor role brought with it an element of pastoral care, and concern for and involvement in students' well-being. This was also present in the course director role, which brought with it a more strategic oversight of the programme's development and its place within ScHARR's teaching output. Finally, the role of interviewer/researcher saw me returning to student data and re-connecting with ex-students, but where both our roles had changed – from tutor to researcher, and from student to ex-student.

It is difficult to know what the impact of these changes was on the course of interviews, but my own reaction to this material might have led to certain discussions being curtailed or not fully explored. In terms of the inductive/CGT approach, and the focused coding around emotions, the emphasis was on the responses from students, and my own questions, and any responses I gave to their comments of questions, are only included as part of a student's response, rather than being the focus of analysis themselves.

The issue of multiple roles (course director, tutor and researcher) was also relevant when considering the quantitative data (outcome measures) and linguistic analysis. For the former, my role in the project was to help in the following:

- choose the measures
- oversee their implementation in the learning environment (e.g. create the aggregated measure containing the individual ones)
- ensure that partners and students had access to the questionnaire
- monitor completion rates (including following up with partners and students where there was missing data)

- collate and analyse the data

For students, completion of the questionnaire was optional, and there were no implications for students in terms of progression if they chose not to complete it. The research project was keen to capture as much data as possible, in order to provide an evaluation of the work, and indeed the release of the final section of funding from the European Union was dependent upon completion of a final report. The questionnaire was presented to students as something that the partnership valued highly, and also something which would provide the students with useful feedback - the partnership provided the learning community with aggregate (and therefore anonymized) feedback on students' responses, and as lead partner, the University of Sheffield offered individual feedback to students if they requested this. At the University of Sheffield, we were bound by the ethics application governing the original research application and funding agreement. So whilst this data was freely given, there was the possibility of subtle pressures being exerted by partners and tutors across the partnership. In terms of my own role, I was careful to ensure that requests for data from students were not framed in coercive terms, and that after a couple of reminders, students were not pursued for return of data. Once the data had been submitted, I felt - as a researcher - little or no emotional attachment to it, viewing it simply as reflective of student experience, and being keen to query it – further down the line - for clues as to the role of emotions for the e-learning community. So any emotional reaction to the data is unlikely to have had an impact on its analysis. There were, naturally enough, frustrations and satisfactions in working with quantitative data, with an overall feeling of accomplishment in being able to draw out conclusions from the statistical tests, albeit some frustration that the measures weren't quite providing sufficient detail to draw firm conclusions, and some regret that a better approach to the quantitative analysis hadn't been taken. However, these feelings were in the context of a busy research project, and a naturally partial awareness, at that stage, of how effective the questionnaire would be. Such emotions are inherent in the endeavour of research, where it is a journey into the unknown, in the hope that the methods selected stand the best chance of providing clues as to the answer.

The same approach to quantitative data applies to the linguistic analysis, with the added comment that as a tutor contributing to the forums being analysed, I was more involved in the generation of the data. However, at the time of making my contributions to discussion forums, it was not yet apparent that they would be analysed in this way, and I was thus simply undertaking the role of tutor, to the best of my ability, without any thought of subsequent analysis. For the most part, I was avoiding bringing in my own emotional reactions to discussion forum postings, unless it was facilitating the learning of

the group, although I did make efforts for my "online presence" to remain an emotionally authentic one, congruent with my own experience and feelings. So if, for example, a student disclosed some personal information, I would respond in a sensitive manner, and of course I did not remain untouched or unaffected by student postings, and interactions with them. I did, however, monitor the impact of these, and attempt to make sure my reactions were conducive to students' learning and engagement. Once the decision was made to analyse the data linguistically, the work involved - the manual labour of extracting discussion forum threads, passing them through the LIWC, and then analysing the output - gave little call for an emotional response, other than those described above for the quantitative measures. My response at the time, as the very rich and fascinating discussion forum narratives became reduced to quantitative data for processing, was merely acceptance as a necessary part of the analysis, perhaps comforted by the knowledge that a more in-depth narrative approach would also be taken to the student interviews, and buoyed by the hope that from the LIWC work would come clues as to the students' emotional experience. The same frustrations and satisfactions described previously pertain. Interestingly, the issue of researchers' own emotions has not received huge amounts of attention. Brannan notes the effect that this apparent disdain for emotions may have had:

> "In ethnographic research, despite its extensive links with feminist and outside epistemologies, the rational/objectivist current remains strong. Whilst the omission of explicit consideration of the emotions of conducting research is a form of privileging the rational over the emotional, a rearticulation of the Cartesian mind-body dualism (Foley, 2002)… it has also gravely impacted on the ways in which research is carried out, and how data is perceived, recorded and analysed".

(Brannan, 2014, p.31)

Bondi focuses more on the emotional experience of the researcher, arguing for "a wider appreciation of researchers' emotions in research practice" (Bondi, 2012, p.231) and I have made my own attempt to do so in this section. Reflexive analysis can facilitate an honest consideration of the researcher's role in producing and analysing the data, as well as bringing out any tensions relating to conflicting roles and competing interests. By helping to shed light on "unacceptable" thoughts and feelings, this analysis has highlighted certain issues for interviews, such as the tendency of participants to want to say the "right thing" and comply with expectations of the interview situation. It is a useful approach for e-learning participants, because when engaging with others online, so much information about the other is inaccessible, and left to the imagination, so allowing unspoken aspects of an interview to surface is important.

3.4 Summary

The research design can be summarised as below:
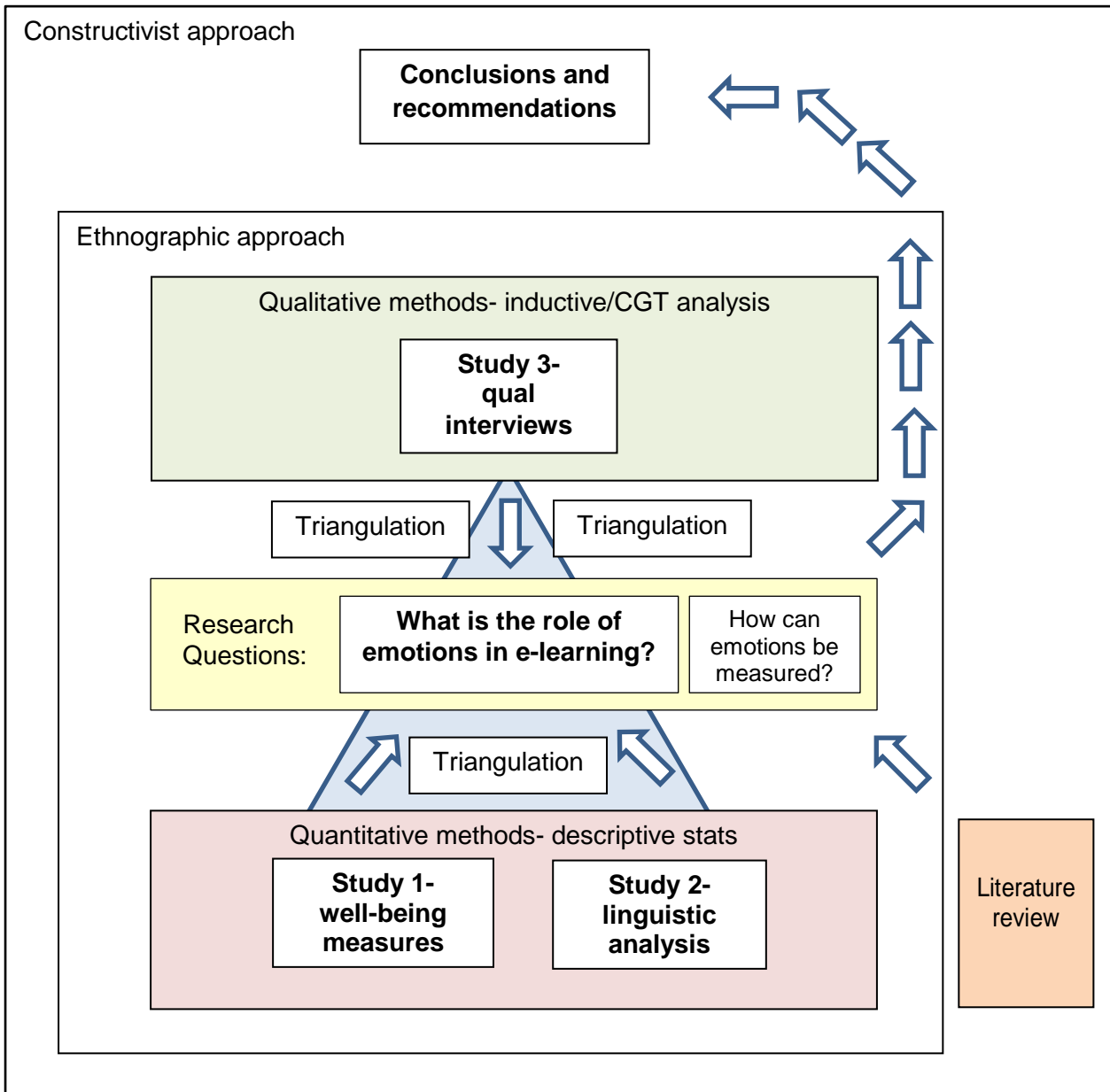
Figure 10 - Overview of research design

The array of methods used in the published research available via the literature review provides good support for the methods employed in this thesis to measure and track the emotions of e-learning students - a combination of self-report questionnaires, linguistic analysis techniques and qualitative interviews.

4 FINDINGS

4.1 Study 1 - Analysis of student data from well-being/mental health measures

The group of measures selected captured data reflecting students' levels of depression, anxiety, well-being and spirituality. Whilst these are not identical, or synonymous, they do each have a clear relationship to well-being, and they correlate well with each other, particularly the PHQ-9, GAD-7 and SWLS (see Appendix XXIIa).

4.1.1 Changes in Well-being

Data were analysed by partner and by module. Mean change scores are shown below:

	pre/post	N	Mean	Std. Deviation
PHQ	pre	97	13.791	4.236
	post	63	13.462	4.668
WEMWBS	pre	97	52.009	8.328
	post	63	51.365	9.759
GAD	pre	97	12.595	5.058
	post	63	14.071	7.184
SWIB	pre	77	52.229	7.002
	post	43	52.529	5.843
SWLS	pre	96	25.604	5.188
	post	62	25.210	5.698
SAIL	pre	81	113.897	16.234
	post	58	114.792	15.603

Table 16 - Pre- and post-module well-being measures

The data presented graphically:
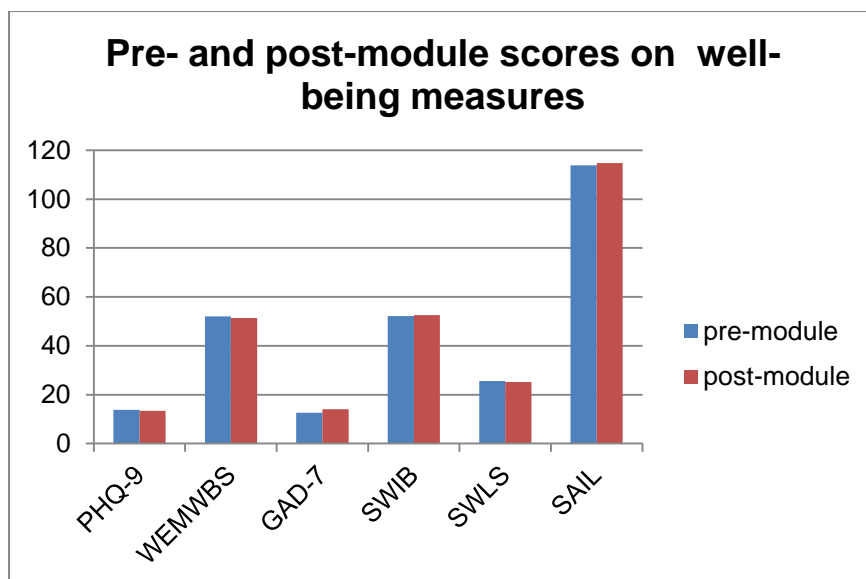
Figure 11 - Pre- and post-module well-being measures

The data were examined in SPSS and were found to be non-normally distributed for PHQ-9, WEMWBS, GAD-7 and SIWB; for SWLS and SAIL, data were normally distributed (see 'z' scores in Appendix XXIIb). Wilcoxon signed rank tests were undertaken on non-normally distributed data (table 17) and t-tests on normally distributed data (table 18), to see if any of these changes from pre- to post-module were significant:

	PHQpost - PHQpre	WEMWBSpost - WEMWBSpre	GADpost - GADpre	SWIBpost - SWIBpre
Wilcoxon Signed Ranks Test (Z)	-1.466[b]	-.439[c]	-1.573[c]	-1.303[b]
Asymp. Sig. (2-tailed)	.143	.661	.116	.193

Table 17 – Comparison of pre- and post-module well-being scores for non-normally distributed data

	t	df	Sig. (2-tailed)	Mean Difference
SWLS	0.449	156	0.654	0.394
SAIL	-0.326	137	0.745	-0.894

Table 18 – Comparison of pre- and post-module well-being scores for normally distributed data

None of the changes were significant. Anecdotally, inspecting the change scores does enable the tracking of individuals, and the identification of students for whom there have been significant emotional events or journeys over the course of a module. For example, where students struggled to engage in modules, this was often shown by negative pre- to post- scores, indicating a possible disparity between optimism at the outset of a learning experience, and disappointment at the end of it. These individual differences were most observable on the WEMWBS and GAD-7 measures.

To compare scores between partners, a Kruskal-Wallis test was required, and from this test, scores on the GAD-7 and SWLS were found to differ significantly by partner (see Appendix XXIIc). Scores were then grouped by partner and module; for non-normally distributed data, Wilcoxon signed rank tests were undertaken (table 19) and for normally distributed data, t-tests undertaken (table 20) - any significant scores are shown in bold:

Partner and module title		PHQpost - PHQpre	WEMWBSpost - WEMWBSpre	GADpost - GADpre	SWIBpost - SWIBpre
Sheffield - Existential & Human Issues (n= 18)	Wilcoxon Signed Ranks Test (Z)	-1.589[b]	-1.133[a]	-2.714[b]	-.623[a]
	Asymp. Sig. (2-tailed)	.112	.257	**.007**	.533
Sheffield - Conflict & Reconciliation (n= 13)	Wilcoxon Signed Ranks Test (Z)	-.105[a]	-.420[b]	-2.121[b]	-1.518[a]
	Asymp. Sig. (2-tailed)	.916	.674	**.034**	.129
Sheffield - Ethics in Counselling & Psychotherapy (n= 4)	Wilcoxon Signed Ranks Test (Z)	n/a	n/a	n/a	n/a
	Asymp. Sig. (2-tailed)	n/a	n/a	n/a	n/a
NSPC - Existential & Human Issues (n= 5)	Wilcoxon Signed Ranks Test (Z)	-1.089[a]	-1.826[b]	-1.342[b]	-.577[b]
	Asymp. Sig. (2-tailed)	.276	.068	.180	.564
NSPC - Conflict & Reconciliation (n= 4)	Wilcoxon Signed Ranks Test (Z)	-.447[b]	.000[c]	.000[c]	-.447[b]
	Asymp. Sig. (2-tailed)	.655	1.000	1.000	.655
NSPC - Ethics in Counselling & Psychotherapy (n= 5)	Wilcoxon Signed Ranks Test (Z)	-.447[a]	-1.000[a]	-1.342[a]	-1.342[a]

	Asymp. Sig. (2-tailed)	.655	.317	.180	.180
Leuven - Existential & Human Issues (n= 20)	Wilcoxon Signed Ranks Test (Z)	-1.311[a]	-1.530[b]	-1.555[a]	n/a
	Asymp. Sig. (2-tailed)	.190	.126	.120	n/a
Bordeaux - Existential & Human Issues (n= 16)	Wilcoxon Signed Ranks Test (Z)	-1.461[a]	-.408[a]	-1.604[a]	-.405[a]
	Asymp. Sig. (2-tailed)	.144	.683	.109	.686
F2F (n= 7)	Wilcoxon Signed Ranks Test (Z)	-1.633[a]	-1.069[b]	-1.069[b]	-.447[a]
	Asymp. Sig. (2-tailed)	.102	.285	.285	.655

a. Based on positive ranks
b. Based on negative ranks.
c. The sum of negative ranks equals the sum of positive ranks.

Table 19- Mean change scores and Wilcoxon Z (outcome measures)

Partner and module title		SWLS change	SAIL change
Sheffield - Existential & Human Issues (n= 18)	Mean	-1.20	6.40
	T-test	0.32	**0.01**
Sheffield - Conflict & Reconciliation (n= 13)	Mean	0.43	2.77
	T-test	0.68	0.23
Sheffield - Ethics in Counselling & Psychotherapy (n= 4)	Mean	0.00	1.00
	T-test	n/a	n/a
NSPC - Existential & Human Issues (n= 5)	Mean	1.50	1.00
	T-test	0.18	0.87
NSPC - Conflict & Reconciliation (n= 4)	Mean	3.67	6.67
	T-test	0.05	0.37
NSPC - Ethics in Counselling & Psychotherapy (n= 5)	Mean	-6.00	-10.62
	T-test	0.30	0.43
Leuven - Existential & Human Issues (n= 20)	Mean	1.80	4.21
	T-test	**0.01**	0.11
Bordeaux - Existential & Human Issues (n= 16)	Mean	-2.40	n/a
	T-test	0.31	n/a
F2F (n= 7)	Mean	3.33	10.33
	T-test	0.20	0.09

Table 20- Mean change scores and t-test (outcome measures)

The following findings are suggested by the Wilcoxon and t-tests:

1. After completing the *Existential* module, Sheffield students were more anxious, and experienced higher levels of spirituality
2. After completing the *Conflict* module, Sheffield students were more anxious
3. After completing the *Existential* module, Leuven students experienced higher levels of satisfaction with life
4. Other change scores not statistically significant

4.1.2 Well-being and collaborative learning

To measure the association between the well-being change scores and the COLLES scores - neither of which were normally distributed - Kendall's Tau was used as this test is more sensitive with smaller sample sizes. Significant associations are shown in bold.

		PHQ change	WEMWBS change	GAD7 change	SWIB change	SWLS change	SAIL change
Relevance	Correlation Coefficient	.042	-.062	.183	.146	.044	.222
	Sig. (2-tailed)	.790	.685	.233	.340	.775	.141
Reflective thinking	Correlation Coefficient	.192	-.083	.015	-.181	-.083	.214
	Sig. (2-tailed)	.218	.584	.924	.234	.584	.155
Interactivity	Correlation Coefficient	.073	.081	**.303**	.118	.121	**.338**
	Sig. (2-tailed)	.643	.597	**.049**	.442	.428	**.026**
Tutor support	Correlation Coefficient	-.101	.145	.183	-.041	.089	.272
	Sig. (2-tailed)	.525	.348	.238	.791	.564	.076
Peer support	Correlation Coefficient	-.071	.021	.079	.186	.239	**.433**
	Sig. (2-tailed)	.647	.887	.602	.218	.113	**.004**
Interpretation	Correlation Coefficient	-.241	.059	-.217	.151	.176	.228
	Sig. (2-tailed)	.125	.702	.157	.326	.251	.133

Table 21- Correlation of Well-being and Collaborative learning scores

These are correlations, so it is not possible to comment on causation. Nevertheless, the data suggest:

- there are strong correlations between changes in SAIL scores and peer support, with weaker correlations with interactivity levels, i.e. measures of spirituality and collaborative learning are moderately related
- there are weak correlations between changes in GAD-7 scores and interactivity levels, i.e. measures of anxiety and collaborative learning are weakly related

4.1.3 Well-being and module mark

Correlations were calculated using Kendall's Tau for the well-being changes scores and the module mark:

		PHQ-9 change	WEMWBS change	GAD-7 change	SIWB change	SWLS change	SAIL change
Module Mark	Correlation Coefficient	.016	-.057	-.188	-.018	.030	.021
	Sig. (2-tailed)	.915	.689	.194	.899	.833	.883

Table 22 - Correlation of Well-being and module marks

The data suggest that there are no correlations between variables, i.e. student mark and well-being measure change scores are not related.

4.1.4 Well-being and weekly activity

Correlations were calculated using Kendall's Tau for the well-being changes scores and student activity (both modules).

		PHQ change	WEMWBS change	GAD-7 change	SIWB change	SWLS change	SAIL change
Weekly activity	Correlation Coefficient	-.043	.071	.032	.0479	.067	.141
	Sig. (2-tailed)	.695	.508	.768	.665	.541	.187

Table 23 - Correlation of Well-being and weekly activity

The data suggest that there are no correlations between variables, i.e. student activity and well-being measure change scores are not related.

4.1.5 Well-being and student satisfaction

Correlations were calculated using Kendall's Tau for the well-being changes scores and student satisfaction (both modules):

		PHQ change	WEMWBS change	GAD-7 change	SIWB change	SWLS change	SAIL change
Student satisfaction	Correlation Coefficient	0.023	0.161	-0.001	0.079	.245*	0.07
	Sig. (2-tailed)	0.845	0.162	0.991	0.5	0.036	0.54

Table 24 - Correlation of Well-being and student satisfaction

The data suggest that there are weak correlations between changes in SWLS scores and student satisfaction, i.e. the "satisfaction with life" mental health measure and self-rated student satisfaction are weakly related.

4.1.6 Relationships between all measures

Summarising the previous correlations gives the table below:

	Collaborative learning (COLLES)	Student activity	Student satisfaction	Student end of module mark	Well-being measures
Collaborative learning (COLLES)	-	Strongly related	Strongly related	No statistically significant relationships	Weakly related
Student activity	-	-	No statistically significant relationships	No statistically significant relationships	No statistically significant relationships
Student satisfaction	-	-	-	No statistically significant relationships	Weakly related
Student end of module mark	-	-	-	-	No statistically significant relationships
Well-being measures	-	-	-	-	-

Table 25 - Summary table of correlations between all measures

4.1.7 Summary of Study 1

This study suggests that the "Well-being" measures do give an indication of individual emotional engagement; anecdotally, but that relations to other measures are variable:

1. The pre- and post-module scores on well-being measures were not significantly different
2. Scores on the GAD-7 and SWLS were found to differ significantly by partner
3. After completing the *Existential* module, Sheffield students were more anxious/depressed, and expressed higher levels of spirituality
4. After completing the *Conflict* module, Sheffield students were somewhat more anxious
5. After completing the *Existential* module, Leuven students expressed higher levels of well-being
6. There are strong correlations between changes in SAIL scores and peer support, with weaker correlations with interactivity levels, i.e. measures of spirituality and collaborative learning are moderately related
7. There are weak correlations between changes in GAD-7 scores and interactivity levels i.e. measures of anxiety and collaborative learning are weakly related
8. There are weak correlations between changes in SWLS scores and student satisfaction, i.e. the "satisfaction with life" mental health measure and self-rated student satisfaction are weakly related.
9. No correlation between well-being measures and module mark or weekly activity

4.2 Study 2 - Analysis of student data with a linguistic analysis tool

Postings to an asynchronous discussion forum were collated and analysed using the LIWC. The following categories of words were selected as being of particular interest for this thesis:

- Engagement
- Transformative
- Posemo (positive emotion, e.g. love, nice, sweet)
- Negemo (negative emotion, e.g. hurt, ugly, nasty)
- Anx (anxiety, e.g. worried, fearful, nervous)
- Anger (e.g. hate, kill, annoyed)
- Sadness (e.g. crying, grief, sad)
- Social (social processes, e.g. mate, talk, they, child)
- Ppron (personal pronoun, e.g. I, them, her)
- I (1st person singular, e.g. I, me, mine)

Focusing on particular categories was designed to enable the research to differentiate between:

- impact of course content (e.g. students talking *about* the concept of anxiety)
- Student reactions to course (students experiencing/expressing anxiety *itself*)
- Individual student dispositions (some students experience/ express more anxiety than others)

Two modules were examined:

- Existential (focus on anxiety, death, freedom)
- Conflict (focus on inter- and intra-personal conflict)

Data were collated across all participating partners for these modules but only data for Sheffield is presented in this thesis - 18 students on the Existential module and 13 on the *Conflict* module.

To look at the scores in week 10 for the Existential and Conflict modules, t-tests were undertaken on means. (NB from comparison in SPSS of the scores across modules, it was safe to assume equal variances):

	Ex_09-10 (n=18)	Conflict_09-10 (n=13)	Sig. (2-tailed)	Mean Difference
Engagement	0.483	0.444	0.699	0.039
Transformative	0.690	0.621	0.557	0.070
Positive emotion	4.156	4.075	0.844	0.081
Negative emotion	1.628	2.107	0.046	-0.479
Anxiety	0.615	0.622	0.958	-0.007

	Ex_09-10 (n=18)	Conflict_09-10 (n=13)	Sig. (2-tailed)	Mean Difference
Anger	0.320	0.607	0.008	-0.287
Sadness	0.360	0.310	0.585	0.049
Social	10.886	10.417	0.484	0.470
Personal pronoun	9.618	9.385	0.677	0.233
I	4.806	4.498	0.493	0.307

Table 26 - T-test for Equality of Means

This test confirmed that at the end of the two modules, there were differences in terms of amount of negative emotion and anger being expressed; both of these were found to be higher in the Conflict module when compared with the Existential module.

Subsequently, tests were used to examine the relationship between LIWC scores from week 1 to week 10 with:

1. Collaborative learning
2. Student activity
3. Student satisfaction
4. Module mark
5. Well-being measures

Although not all LIWC data were normally distributed (see 'z' scores in Appendix XXIIb), Pearson tests were used as these do not assume a normal distribution, and are appropriate for larger sample sizes.

4.2.1 LIWC and collaborative learning

A Pearson test was undertaken to examine relationships between LIWC and COLLES scores (NB data on COLLES scores was only available for the *Existential* module, and not for the *Conflict* module. For all other measures, data are given for both modules):

		Relevance	Reflective thinking	Interactivity	Tutor support	Peer support	Interpretation
Engagement	Pearson Correlation	0.094	0.074	0.049	-0.47	0.044	-0.241
	Sig. (2-tailed)	0.719	0.778	0.851	0.057	0.865	0.351
Transformative	Pearson Correlation	-0.018	-0.076	-0.027	-.537*	-0.056	-0.255
	Sig. (2-tailed)	0.946	0.773	0.918	0.026	0.831	0.322
Positive emotion	Pearson Correlation	-0.297	0.118	-0.283	0.026	-0.099	-0.21
	Sig. (2-tailed)	0.246	0.653	0.271	0.922	0.705	0.418
Negative emotion	Pearson Correlation	0.15	-0.023	0.173	0.04	0.203	.632**
	Sig. (2-tailed)	0.567	0.93	0.507	0.878	0.435	0.006
Anxiety	Pearson Correlation	0.071	-0.216	0.049	-0.11	-0.075	0.374
	Sig. (2-tailed)	0.785	0.405	0.853	0.675	0.776	0.14
Anger	Pearson Correlation	0.246	-0.013	0.18	-0.09	-0.076	0.094
	Sig. (2-tailed)	0.341	0.96	0.489	0.731	0.771	0.719
Sadness	Pearson Correlation	-0.06	0.093	0.153	-0.38	-0.16	0.2
	Sig. (2-tailed)	0.82	0.721	0.558	0.133	0.539	0.442
Social	Pearson Correlation	-0.087	-.513*	0.046	-0.232	-0.107	-0.027
	Sig. (2-tailed)	0.741	0.035	0.862	0.371	0.683	0.918
Personal pronoun	Pearson Correlation	0.143	-0.387	0.069	0.187	0.228	0.413
	Sig. (2-tailed)	0.584	0.125	0.792	0.473	0.378	0.1
I	Pearson Correlation	-0.061	0.194	-0.27	0.279	0.138	-0.108
	Sig. (2-tailed)	0.816	0.455	0.295	0.279	0.598	0.681

Table 27 - LIWC and COLLES scores

Results suggest that for students on the *Existential* module 2009-10:

- self-rated levels of "Tutor support" were associated with a decrease in use of *Transformative* language
- self-rated levels of "Interpretation" were associated with an increase in *Negative emotion* language
- self-rated levels of "Reflective" were associated with a decrease in *Social* language

4.2.2 LIWC and student activity

A Pearson test was undertaken to examine relationships between LIWC and student activity:

LIWC category		Weekly activity	
		Existential	Conflict
Engagement	Pearson Correlation	0.066	-0.264
	Sig. (2-tailed)	0.802	0.407
Transformative	Pearson Correlation	0.1	-0.32
	Sig. (2-tailed)	0.701	0.31
Positive emotion	Pearson Correlation	-0.176	0.128
	Sig. (2-tailed)	0.5	0.692
Negative emotion	Pearson Correlation	0.361	0.309
	Sig. (2-tailed)	0.154	0.328
Anxiety	Pearson Correlation	-0.051	.623*
	Sig. (2-tailed)	0.846	0.03
Anger	Pearson Correlation	0.133	0.051
	Sig. (2-tailed)	0.611	0.876
Sadness	Pearson Correlation	0.373	-0.12
	Sig. (2-tailed)	0.14	0.71
Social	Pearson Correlation	-0.122	-0.019
	Sig. (2-tailed)	0.64	0.954
Personal pronoun	Pearson Correlation	-0.044	0.081
	Sig. (2-tailed)	0.867	0.802
I	Pearson Correlation	-0.422	0.118
	Sig. (2-tailed)	0.092	0.716

Table 28 - LIWC and student activity

Results suggest that for students on the *Conflict* module 2009-10:

- levels of online activity were associated with increases in use of *Anxiety* language

4.2.3 LIWC and student satisfaction

A Pearson test was undertaken to examine relationships between LIWC and student satisfaction:

LIWC category		Satisfaction	
		Existential	Conflict
Engagement	Pearson Correlation	-0.475	0.129
	Sig. (2-tailed)	0.073	0.784
Transformative	Pearson Correlation	-.516*	-0.178
	Sig. (2-tailed)	0.049	0.702
Positive emotion	Pearson Correlation	0.013	0.388
	Sig. (2-tailed)	0.965	0.39
Negative emotion	Pearson Correlation	0.242	-0.06
	Sig. (2-tailed)	0.384	0.899
Anxiety	Pearson Correlation	0.04	0.264
	Sig. (2-tailed)	0.888	0.568
Anger	Pearson Correlation	0.397	-0.348
	Sig. (2-tailed)	0.143	0.444
Sadness	Pearson Correlation	-0.118	-0.143
	Sig. (2-tailed)	0.676	0.759
Social	Pearson Correlation	-0.222	0.515
	Sig. (2-tailed)	0.427	0.237
Personal pronoun	Pearson Correlation	-0.041	.773*
	Sig. (2-tailed)	0.886	0.042
I	Pearson Correlation	0.216	0.291
	Sig. (2-tailed)	0.439	0.526

Table 29 - LIWC and student satisfaction

Results suggest that for students on the *Existential and Human Issues* module 2009-10:

- student satisfaction was associated with a decrease in use of *Transformative* language

whilst for students on the *Conflict* module 2009-10:

- student satisfaction was associated with an increase in use of personal pronouns

4.2.4 LIWC and module mark

A Pearson test was undertaken to examine relationships between LIWC and module mark:

LIWC category		Module mark	
		Existential	Conflict
Engagement	Pearson Correlation	-0.074	0.292
	Sig. (2-tailed)	0.778	0.357
Transformative	Pearson Correlation	0.015	-0.183
	Sig. (2-tailed)	0.955	0.57

Positive emotion	Pearson Correlation	0.078	0.366
	Sig. (2-tailed)	0.766	0.242
Negative emotion	Pearson Correlation	-0.145	-0.231
	Sig. (2-tailed)	0.578	0.469
Anxiety	Pearson Correlation	-0.24	-0.013
	Sig. (2-tailed)	0.354	0.969
Anger	Pearson Correlation	-0.149	-0.334
	Sig. (2-tailed)	0.569	0.289
Sadness	Pearson Correlation	-0.001	-0.286
	Sig. (2-tailed)	0.998	0.367
Social	Pearson Correlation	-0.334	-0.153
	Sig. (2-tailed)	0.191	0.634
Personal pronoun	Pearson Correlation	-0.352	0.149
	Sig. (2-tailed)	0.166	0.644
I	Pearson Correlation	0.013	0.252
	Sig. (2-tailed)	0.961	0.429

Table 30 - LIWC and module mark

Results suggest no significant correlations.

4.2.5 LIWC and well-being measures

A Pearson test was undertaken to examine relationships between LIWC and well-being measures:

LIWC category		Existential module					
		PHQ change	WEMWBS change	GAD7 change	SWIB change	SWLS change	SAIL change
Engagement	Pearson Correlation	0.009	-0.109	-0.335	-0.143	-0.138	-0.051
	Sig. (2-tailed)	0.974	0.677	0.189	0.585	0.596	0.845
Transformative	Pearson Correlation	0.109	-0.1	-0.309	-0.151	-0.051	-0.046
	Sig. (2-tailed)	0.678	0.703	0.228	0.562	0.847	0.861
Positive emotion	Pearson Correlation	0.452	0.239	0.03	0.179	0.25	0.288
	Sig. (2-tailed)	0.069	0.356	0.909	0.492	0.333	0.263
Negative emotion	Pearson Correlation	-0.357	-0.125	-0.162	-0.137	0.04	-0.106
	Sig. (2-tailed)	0.159	0.634	0.535	0.6	0.878	0.684
Anxiety	Pearson Correlation	-0.026	-0.245	0.021	-0.222	-0.019	-0.129
	Sig. (2-tailed)	0.92	0.342	0.936	0.391	0.942	0.622
Anger	Pearson Correlation	-.493*	-0.345	0.126	-0.262	-0.318	-0.399
	Sig. (2-tailed)	0.044	0.174	0.631	0.311	0.213	0.112
Sadness	Pearson Correlation	-0.13	-0.08	-0.235	-0.15	-0.067	-0.092
	Sig. (2-tailed)	0.619	0.759	0.363	0.565	0.798	0.727
Social	Pearson Correlation	0.253	-0.057	0.399	0.02	0.03	0.001
	Sig. (2-tailed)	0.328	0.829	0.113	0.941	0.908	0.997

LIWC category		Existential module					
		PHQ change	WEMWBS change	GAD7 change	SWIB change	SWLS change	SAIL change
Personal pronoun	Pearson Correlation	-0.056	-0.12	0.165	-0.057	-0.055	-0.106
	Sig. (2-tailed)	0.832	0.645	0.527	0.829	0.834	0.686
I	Pearson Correlation	-0.201	-0.102	-0.222	-0.128	-0.124	-0.142
	Sig. (2-tailed)	0.44	0.696	0.391	0.623	0.634	0.587
LIWC category		Conflict module					
		PHQ change	WEMWBS change	GAD7 change	SWIB change	SWLS change	SAIL change
Engagement	Pearson Correlation	-0.12	-0.078	0.076	0.508	0.39	-0.272
	Sig. (2-tailed)	0.798	0.867	0.871	0.244	0.387	0.555
Transformative	Pearson Correlation	0.564	-0.65	-0.196	0.398	0.014	0.086
	Sig. (2-tailed)	0.187	0.114	0.673	0.377	0.977	0.855
Positive emotion	Pearson Correlation	-0.484	0.104	0.507	-0.009	0.253	-.836*
	Sig. (2-tailed)	0.271	0.824	0.245	0.985	0.584	0.019
Negative emotion	Pearson Correlation	0.144	-0.128	0.276	0.714	0.118	0.134
	Sig. (2-tailed)	0.758	0.784	0.549	0.071	0.801	0.775
Anxiety	Pearson Correlation	-0.103	-0.383	0.712	0.079	0.079	-.880**
	Sig. (2-tailed)	0.826	0.397	0.073	0.866	0.866	0.009
Anger	Pearson Correlation	0.106	0.085	-0.119	0.706	0.13	0.356
	Sig. (2-tailed)	0.822	0.857	0.8	0.076	0.781	0.434
Sadness	Pearson Correlation	0.463	-0.536	0.738	0.704	-0.362	-0.31
	Sig. (2-tailed)	0.296	0.215	0.058	0.077	0.425	0.499
Social	Pearson Correlation	0.278	-0.374	0.191	0.097	-0.182	-0.334
	Sig. (2-tailed)	0.546	0.409	0.682	0.836	0.696	0.465
Personal pronoun	Pearson Correlation	-0.54	0.442	0.361	-0.666	0.273	0.243
	Sig. (2-tailed)	0.211	0.32	0.426	0.102	0.553	0.6
I	Pearson Correlation	-0.393	0.384	0.169	-0.693	0.16	0.422
	Sig. (2-tailed)	0.383	0.396	0.717	0.084	0.732	0.346

Table 31 - LIWC and well-being measures

Results suggest that for students on the *Existential* module 2009-10, *Anger* language were associated with changes in well-being measure scores. For students on the *Conflict* module 2009-10, the language categories *Positive emotion and Anxiety* were related to changes in well-being measures. Notably, none of the associations noted for the *Existential* module 2009-10 were replicated for the *Conflict* module 2009-10.

4.2.6 Relationships between LIWC scores and all other measures

Analysis via the LIWC of the two modules gave a different pattern of responses - what we might call "emotional language profiles". Mean frequency counts show that the *Conflict* module evoked more negative emotions and anger than the *Existential Issues* module (and

this confirms the experience of tutors). In general, the LIWC scores did not correlate significantly with changes in other outcome measures, the exceptions being *Negative emotion* language and the use of the personal pronoun "I". *Negative emotion* language showed the following:

- increased when self-rated levels of "Interpretation" (Collaborative learning) increased (measured halfway through *Existential* module)
- increased when activity levels increased (measured throughout *Existential* and *Conflict* modules)
- increased when levels of spiritual well-being increased (from pre- to post-*Conflict* module)

Use of the personal pronoun "I" showed the following:

- decreased when activity levels increased (measured throughout *Existential* module)
- increased when module marks increased (measured at the end of the *Existential* module)
- increased when scores on WEMWBS and SAIL increased (from pre- to post-*Conflict* module), i.e. increased with increasing well-being and spirituality
- decreased when scores on PHQ and SIWB increased (from pre- to post- *Conflict* module), i.e. decreased with increasing depression and spiritual well-being

4.2.7 Summary of Study 2

This study confirms that the LIWC is able to detect changes in language relating to emotion in online postings. There were a small number of significant correlations between LIWC scores and COLLES scores, student activity, student satisfaction and some of the well-being measures, but in general, correlations were not found between LIWC scores and other measures, so it is not possible to say for certain that the LIWC is able to track or measure students' emotions *as they are captured by other measures*.

4.3 Study 3 - Analysis of student data from qualitative interviews

Ex-students were interviewed by me about their experience of emotion in their e-learning, and the role that it played. Interviews – conducted wither online or face-to-face - were recorded via audio, and then transcribed for analysis. A narrative approach was adopted - each interview began with a short explanation from the interviewer about the purpose and context for the interview, and then proceeded with the aid of some prompts shown in Appendix XVIII. The qualitative analysis produced a set of 11 themes which included all the relevant data on the role of emotions in participants' experience of e-learning. These themes constitute the headings for section 4.3.1.1 - 4.3.11.

4.3.1 Qualitative analysis of full texts

When given an open invite to approach the research question in any way they wished, most participants began by recounting their entry onto the course, and initial feelings of anticipation, curiosity and excitement, as well as fear and anxiety.

4.3.1.1 Anxiety

Participants expressed anxiety about commencing studies, from the very first interaction, and initially these focused on procedural anxiety about practical issues, and anticipation about what might be required of them. This anxiety was a common experience, although one that was felt to differing degrees:

> Sarah: I remember the initial days of it, and it was all the logistics of getting started, and I thought there was a lot of anxiety about and I didn't really experience that so much myself… it was the same trepidation of Freshers' week where physically, people are looking for what lecture room to go to. Didn't feel any different to me, than that, and coming into a room and going "Is this the right group?"

For some, the time elapsed since their previous education was a cause of some anxiety, as was the new mode of learning:

> Andrew: So... yeah, before starting the course, I was quite nervous… it had been ten years since I last set foot in a University and then doing it online as well so yeah, quite anxious, didn't know what to expect basically

The experience of anxiety was generally framed by participants as being entirely normal, and to be expected at the start of a new endeavour where it was not clear what the demands placed on students would be. The "online-ness" of the experience is not a central part of these reactions, but it does become apparent when participants begin to consider their preconceptions about what the experience of online learning would be like:

> Sarah: I thought [online learning] would be a very dry, kind of arid, umm, and that, that kind of coldness that you get with a computer screen as opposed to a lovely book or something… but when you saw the pictures of the islands, and "conflict island" and "existential island", I suppose it was the metaphor in it really, it felt quite vivid…

One participant's uncertainty stemmed in part from what others had said about her ability to study online:

> Michelle: Well, my first emotion maybe was that it was something to expose myself to an online learning experience was something that was like… I didn't know how that would be for me, yeah? And people that know me really well who told me "Ooh, it's not for you, cos you're somebody who needs interaction, you're somebody who needs that"… I felt insecure at the beginning, I didn't know, I felt nervous, I, I felt kind of like entering a journey that I really didn't know how it would be for me, you know?

The common experience was that the anxiety subsided after 2-4 weeks, when relationships began to form. Around this time, people began to share their insecurities and realised that everyone thought others would know more than them. This seems to have been exacerbated by the lack of visual feedback in this mode of interaction, e.g. asynchronous messages being posted online, without the benefit of immediate visual feedback on how they were being received, and the resulting silence which sometimes greeted online interactions):

> INT: How long did you take to settle in, do you think?
>
> Elizabeth: Umm, I think only a couple of weeks, when umm everyone was saying the same things, because you get that time to just get to know each other and... everybody was saying they were daunted and felt a bit anxious and umm everyone seemed to think that they would be the, the daftest person on the course, so I think we were all in the same boat and that and, and immediately felt- everyone was very upfront and honest about their anxieties at the start so that made me feel comfortable quite quickly, umm, yeah, so fairly soon in.

For the majority of students, these relationships formed via discussion forum interactions, though one student reported the spontaneity of chatroom interactions as being crucial in their development. Despite the beginnings of feelings of connectedness, a level of anxiety persisted for a number of students until they received feedback on their first pieces of written work, at the end of the first module. One participant reported that it was only at that point that she was confident she would be "OK with the course", and this seemed to stem from her own lack of confidence in terms of academic ability:

> Elizabeth: Umm it actually, it, it actually felt when I started that umm, it was, it was too easy [laughs], too good to be true, so I wasn't, I wasn't really convinced until the assignment [laughs], that I was OK… from an academic point of view.

There was also anxiety around levels of contribution. Students were required to post at least three forum messages per week and attend a synchronous chatroom, but some were uncertain about contribution levels, and sought feedback directly from course staff:

> Keri: I remember writing to [tutor A]… and generally letting him know that you know I was contributing very little and I'm not sure how I was getting along, and he sort of replied back… I felt a little reassured… I started to feel it's OK where I am… I would say about the third, third week or so… Yes, writing to him itself I think err took me beyond a small hump for myself.

When asked whether the topic of a module had any connections with the emotions experienced during that module, Shaun commented:

> Shaun: I suppose, because of the existential flavour, to the course, you know, anxiety was in the mix the whole time.

There were also connections for participants between the Conflict module and life outside the course:

> Shaun: The first module for me was "Conflict & Reconciliation"… it was mirroring something that was happening for me in my job, at the time… and I was really able to relate all of the learning from that module into the real world experience that I was going through professionally at the time.

One participant found that this parallel processing had a beneficial effect on her anxiety:

> Keri: while I was managing my conflict, I was quite anxious... But as I was putting it down, and there was a whole framework and context, just, just sort of looking at where I did alright, where I did not do alright, all of it just kind of was liberating, I would say- not so much about how I managed my conflict, but how I understand I manage my conflict.

To summarise, it was common for participants to experience anxiety at the start of a new endeavour, and for many students, they were returning to higher education after a considerable gap. So naturally there was some apprehension about re-engaging with education and being judged by peers. Many students reportedly felt that others would know more than them, and this was exacerbated by the lack of visual feedback. Some participants found there were connections between anxiety experienced during the course and anxiety experienced outside in relationships at home and work. Most participants found that the anxiety began to recede after a couple of weeks once they started to make connections with peers, and become accustomed to the learning environment and what was required of them; several participants said that it was only after the first assessment was returned with feedback that their anxiety finally subsided and they settled into the course, confident that they could handle the rigours of online learning at postgraduate level; and for some participants, a level of anxiety about their place in the learning community remained throughout.

4.3.1.2 Engagement with content/process

Even before the course, began, the accomplishment of being accepted onto the programme was a significant milestone for several participants, for example:

> Shaun: And then applying for it and getting accepted onto the course, I remember, God, feeling very positive about that at the time, and feeling very happy that I'd been accepted onto a Masters course, so that was a very positive start for me.

Speaking about engagement in the early stages of the course, participants reported feeling a sense of anticipation mixed with anxiety, as well as feeling interested, excited, curious, passionate about learning, and "really throwing myself into it." Significantly, there was also an attraction to e-learning due to being comfortable with the written form of language:

> Jo: Also I think I liked it a lot because I love to write and I think I express myself a lot better umm in the written form than verbally. I will say things in emails, and when we used to write letters, I would say things in letters that I wouldn't say-

Asynchronous communication also afforded learners opportunities to more carefully compose their contributions; they were able to reflect on a posting in draft form and edit it before posting, and the process of writing thoughts out by hand/computer helped with a considered kind engagement which was useful for managing or avoiding other negative feelings:

> Sarah: umm I was aware umm of a greater confidence in contributing across the course, and I think that was probably partly cos it's written, so there was something about written element, and that's my preferred way of expressing myself umm and it allowed again it's the shame thing I think, it allows you to check out what you were saying before you post it [laughs]

Such self-reflection seemed to allow participants to be more confident that they were expressing themselves accurately, and judging their responses to others appropriately. It can therefore be seen as a way of either containing or warding off the anxiety which spontaneity might engender through misrepresenting oneself or disclosing more than one intends (see 4.3.1.6 - emotional disclosure for more on this).

When moving on to engagement with the process of learning, most participants spoke about this in relation to the discussion forums (asynchronous) and chatrooms (synchronous). It was noticeable that the early narratives around this were favourable, with engagements discussed in positive terms:

> Jo: Umm, I think my favourite part- well, I liked everything really- I liked, I really liked the discussion forums, I liked the umm interaction with other people.

The asynchronous nature of the forum exchanges meant that students found themselves returning frequently to check whether there had been replies to messages posted online:

> Elizabeth: I, I, I spend a lot more time doing the work that I thought I was going to do so I set aside a certain amount of time to do umm reading and but because of the forums, I found I was quite addicted to looking back at them and answering. So I spent a lot of time, a lot more time on the whole degree than I expected to.

Describing interactions with a course as "an addiction" suggests an attachment to the educational experience which is both strongly positive and strongly negative at the same time.

Most participants expressed a preference for the forums ahead of the chatrooms because they were able to go at their own pace, and have time to think before responding, whereas the chatrooms often felt too fast-paced and chaotic:

Charles: I think the forums were far better because the chatrooms were pretty manic in the hour… so the forums were at least a time to contact and communicate with other colleagues, give them more time, more thoughtful… because in the chatrooms, it is a reaction- whereas with the forums, one's got time to contemplate, and think deeply about things, and then do a bit of research as well.

There were exceptions - one participant engaged much more easily with the chatrooms than the forums, and this was in part motivated by the fact that chatroom sessions were assessed. This same student also felt motivated to undertake self-assessment online quizzes, and described how she would get quite competitive with herself, and how she used the quizzes to check her understanding of the main learning objectives each week. She felt that chatrooms gave more of a flowing conversation than forums, which made her feel included in the community, and described the timeframe and process for settling in to the course:

Rachel: it was probably about a month before I really started feeling umm reasonably OK, umm, you know, I got, I got the hang of the, of doing posts. Once I'd done a couple of chatrooms, I was feeling, I felt better… Now the chatroom experience actually eventually gave me a lot of confidence… I felt part of something, with the chatrooms particularly, err so the forums to an extent but the chatrooms particularly… Well, there was a feeling of sort of immediacy, I think… umm, so it was more, it was spontaneous.

Rachel noted that the issue of spontaneity and disclosure also emerged in relation to styles of interaction, and that there were differences between her online and face-to-face ways of being:

Rachel: Umm interestingly, if I'd been in an actual room with a group of people, I tend to hold back… cos I see the body language, you know, I see other people want to speak, and, and I hold back. But when I- you know, you obviously can't do that, and I just obviously typed in what I wanted to say and you know, when I get good feedback, or if it got a good sort of conversation going, I felt good about that, and I felt good about myself, and a lot more confident than I would have been in an actual group. And a strange knock-on effect from that was when I- later on, now that I am in groups, I feel a lot more confident in groups generally

Other participants echoed these comments, for example suggesting that the online nature of the course allowed them to tap in to the part of their identity that would like to be more outgoing and spontaneous, giving them permission to speak and contribute more. Several students reported feeling able to participate more online than in a face-to-face group, especially a large one, where they would hold back and be hesitant about contributing. Some realised that they didn't experience any anxiety about forum or chatroom interactions where they would normally have felt anxious about "live" group sessions. She went on to

consider how online, she was enabled to be quiet and did not feel the same pressure to speak:

> Felicity: But if I was umm going into a, a social situation where I didn't know anybody, then- I think actually for me, that's about not knowing what to say, it's not knowing what to say… Cos yeah, online, you, you don't have to speak straight away, do you? You can take your time.

The lack of knowledge about others online proved to be liberating in some ways- for example, Michelle was surprised at the extent to which the course enabled her to focus on her own learning:

> Michelle: I really, I really was surprised because I found it incredibly helpful for me to not be so focused on like the other people, yeah? I had the feeling like I could really focus much more on my experience, on my learning, and um, and that really surprised me, and I was really, really very much into it, you know?

But there were also certain barriers to connection, and the disembodiment was problematic for some participants:

> Keri: I sometimes learned some very interesting and touching things about the other person, but still not having the face, and the voice, umm, you know, made me sort of hold back.

She went on to suggest that there might also be cultural elements to this sense of holding back, which would be applicable to both online or offline interactions. Shaun experienced a difference between emotion in the online and face-to-face context, and thought this may have been because of the content of the learning. He recalled doing clinical training which involved some extremely emotional work, but didn't experience the same intensity in the online course, and he attributed this as follows:

> Shaun: And part of it is that it wasn't, you know, an experiential course, was it, there was no skill, or hands-on learning, that wasn't the way the course was. So I mean, that was part of the reason for it like, and the other part of the reason was, you know, reading something isn't as emotive as listening to someone speaking those words, maybe.

Notably, students' personal lives outside their studies impacted on their learning in numerous ways, and for some students, there were specific personal issues which changed the way they were able to engage. One student experienced a bereavement during a module which necessitated a leave of absence. Speaking about returning to the course, Sarah felt able to control when she spoke about her bereavement, and when she kept it to herself. She was also able to be upset at certain points without others knowing, and without feeling as though she needed to talk about her distress or explain it to others. So the anonymity of online learning was helpful in giving her some control. Another student experienced a serious illness after a diagnosis of breast cancer, and she found the contact from other students extremely valuable. She echoed Sarah's experience:

> Michelle: And that was also like very useful in the way that I kind of like, I, my emotions were almost- it helped me, it helped me keep my emotions a bit separate, you know, so they were not kind of like all over all the time, yeah? So like studying, and discussing kind of like err things with other students about the subject was also actually helpful and then I remember, yeah, I felt really an enormous emotional support from this group, and that was really, that was really amazing, yeah?

The fact that she felt so close to and supported by students she had never met was both surprising and very comforting.

Participants spoke about a discontinuity in experience from the course modules - where in general they felt connected and highly engaged - to the dissertation phase, which was much more of a solitary pursuit in conjunction with their supervisor, and little or no peer interaction. Some, like Keri, enjoyed the supervisory process:

> Keri: For me, the dissertation was very special, Chris. Err there was a deepening of umm how I was learning. Umm I was very fortunate to have a supervisor who was so grounded in the subject that I was err researching on. Umm I enjoyed her err supervision.

Others found the change from highly interactive, structured modules to the dissertation to be more challenging, and several participants report frustration around this (see section 4.3.1.10 Frustration/anger).

Participants spoke about engaging with the course via their background as clinicians, and how learning from the course could be applied to their clinical work, despite the fact that it wasn't a clinical training per se:

> Charles: I thought the Ethics module was superb, because it was, we had so much we did on our own, then it was live, and for someone who has been something of a worrier for most of my life, and has lacked confidence for most of it, although that's beginning to increase and grow now.

and related to this, the same participant had an increased level of confidence in his clinical practice after some advice on a clinical issue:

> Charles: So now that has helped me to worry less and be more confident. So that was a real lightbulb moment and helped me emotionally as well.

Others made similar observations about how the course had a positive influence on their working practice:

> Michelle: And actually, I found that really quite interesting as well, the feeling that "Yeah, I'm learning something theoretical and I really know about in the real dealing"… the whole existential question, I think that was actually a learning that influences me now quite a lot in my work, yeah? And this is actually for me quite a breakthrough… this was definitely something quite profound I've err learned or, yeah, that started in the course.

Shaun found the theory useful to his clinical work, and the experience of writing about it for an assessment helped him to handle a conflict effectively. He described several "penny

dropping" moments during that module, as he integrated his personal experience into theoretical frameworks:

> Shaun: I think the existential flavour [of the course] definitely has been useful to me, and the other bit that has been useful to me from the course was that conflict module because I'm allowed to sta- I'm able to stand back from things now and kind of see things, you know, within a framework rather than get swept along by them. So that's been really useful to me. But at the time, it really helped me to umm to handle the conflict. And I wrote up my umm paper for that module on something that I was dealing with at work, at the time, and I remember, it just helped me to deal with that conflict, really really effectively.

There were other more prosaic aspects of studying online, such as the convenience afforded by distance learning, e.g. the student who had previously spent many years driving several hours at the weekend in order to pursue his studies did not having to travel for this programme, and was able to work from home:

> Shaun: I was just so glad to find a course that was so family friendly for me with three small kids and two part-time jobs, that I could do from where I live is pretty remote, so it was just fantastic, it was a real match for me

To summarise, Students had to overcome their anxiety to start engaging with the course. Some were attracted by the interaction being text-based as it allowed them to carefully compose their contributions before posting, and this helped to avoid feelings of shame and embarrassment. For this reason, most participants preferred the forums to the chatrooms, and this enabled many of them to feel more confident in engaging and contributing than they would be face-to-face. Students also felt highly engaged when they considered their personal experience in light of the theoretical materials, and many found that this later impacted positively on their clinical work.

4.3.1.3 Connectedness

The ways in which participants were able to form connections with one another, and become aware of these connections and the existence of a community of learners, was an important theme in the interviews. Learners appreciated the fact that they were geographically and perhaps culturally distant but were facing similar questions and challenges through their learning. For some, the various ways in which they were attracted to their peers, and formed friendships with fellow learners, was a key factor in being able to keep going during the early, difficult days on the course:

> Jo: I think I stayed with [the existential course] actually because by that time I'd really come to like the people on that course- they were a fantastic group... And, umm, it was, I wasn't really enjoying it, but I didn't want to leave the group cos I liked the people, which is mad when you consider none of us knew any of, knew any of each other… I really got a lot out of that course, that was definitely my best course and I ended up getting a distinction on the umm assignment in that course and umm, yeah I really, really enjoyed it.

It often came as a surprise to participants that it was possible to "know" and connect with others online, and feel a sense of belonging to the group:

> Michelle: … and that was really interesting because I haven't had that experience before that you can actually get a sense of the personality, I mean I really, I really have the sense I know these people… through the words they were using, through the way they were arguing … very interesting, and, and actually quite quickly, you know?

Participants were aware of differences in terms of familiarity with topics being studied, and professional experience. These differences were generally reported as contributing to the diversity of the learning community rather than inhibiting connection and dialogue:

> Jo: Umm, I soon realised that I was quite out of my depth in a way that everybody else was actually a therapist, and knew- had a lot more background clearly than I did. Umm... but it didn't seem to mind, maybe because they're therapists, they were very, it was kind of a very supportive environment.

She recalled asking questions in a forum which in retrospect she found embarrassing, but she was grateful that no-one made her feel awkward about that, and it resulted in "a very comfortable environment".

Participants described feeling that everyone would know more than them, and how encouragement from the group on early interactions was key to moving from an anxious isolated state to a more comfortable connection where it was acceptable to make mistakes or admit that you didn't know something. Through these kinds of processes, connections between students began to form, aided by communication which could be either open or private, with experiences of intimacy, closeness, empathy and like-mindedness, and participants reported feeling included, welcomed and valued. Participants commented on the dissolution of connections at the end of a module, and the sense of sadness which that brought:

> Sarah: by the end it was a quite a tight group, it was one of those groups where you really think "Aah, that's a shame… I'm not going to work with those people again"… I was going to say perhaps one of the things was about wanting the kind of intimacy and closeness and like-mindedness with others and I think I, I felt like I got that a lot from this course and got you know, to look at different views, but a real sense of opening up and trying things out.

Students found it strange at first that groups only lasted for the duration of a module, and were then reconstituted differently for the next module:

> Shaun: but… I got used to that as the course went on, and then maybe, you know, it got a little bit easier to build up to a kind of online trust with people than it would have done.

There were also moments of disagreement, although these were not frequently commented on during interviews, and it is not clear whether this was because such disagreements were rare, whether participants did not recall them, or whether for some reason, they chose not to share them during the interviews. Participants did not report them being barriers to

engagement or learning. They did report a difference in "flow" between one group and another, where group either seemed to "click" or it didn't; reasons for these differences were not pinned down, but there were suggestions that it may have been rooted in personalities of students, and differences in how connected, and therefore at ease, the students felt:

> Michelle: There was somehow, you know, it wasn't quite fluid…- either people didn't, didn't write something for ages, or- it just didn't flow. And I experienced that in one course quite strongly, that it didn't flow. And of course then, I adapted, in a way, you know, I also closed up more.

One participant noted that whilst she found strong emotions such as anger difficult to deal with face-to-face, she found that she had a more assertive way-of-being online:

> Rachel: So [being online] takes the negative emotions away from things, so perhaps you're more able to have a, a bit more of an assertive discussion, as well, because you're having to, you're having to write, you know, type it all in, so you're a little bit more detached from what you're saying, you can't just open your mouth and say it.

Several participants noted how support from the tutors was crucial in settling in to the course and connecting with others; this support was also instrumental in containing and reducing anxiety (see 4.3.1.1 - anxiety) and ranged from moral support to practical advice on online learning to help in understanding theoretical materials. For example, where students lacked clinical experience, the tutor played a key role in reassuring students that they could refer to life experience and still have a valid viewpoint on a clinical issue, and make useful contributions to the discussion. Some students were encouraged to utilise clinical experience which whilst not addressing the course materials directly, was still relevant, and this helped to get beyond concerns around academic ability.

In addition to this kind of support, the tutor needed to convey to the group that they were regularly checking in on the learning, keeping tabs on the group and taking its temperature at regular intervals, to give the sense that there was "somebody out there". It was also noted how important it was for students to feel able to approach one of the tutors to discuss a personal issue:

> Felicity: whoever was the tutor for that module umm I know that I would always have felt perfectly safe to go to whoever it was which goes back to that sort of set-up of having somewhere to talk about it. You all managed to convey that feeling of safety- perfectly well enough for me, anyway.

Similarly, Shaun spoke about how the feeling of being connected to his peers grew, and how he always felt connected to other people, regardless of where in the world they were located:

> Shaun: Maybe towards the end of that first module, feeling connected to other students… that was something that grew for me, throughout the course, and it [inaudible] e-learning, that

feeling of being connected with people around the world, and feeling that common bond you had with other people striving toward a common goal.

Speaking of endings, participants noted that where connections were not so close, the impact of endings was not so noticeable:

Rachel: There was a feeling of loss for the people I'd lost along the way, who hadn't finished as well, and, and not knowing how things ended for them… but on the whole, the ending was easier as well, the entire ending was easier.

In summary, being connected to peers was identified as a vital part of the online learning experience, perhaps because there is a tendency, due to geographical and cultural distance, to feel isolated from other learners with whom one has only occasional contact, usually mediated purely through textual exchanges. In fact, online learners were able to cultivate surprisingly close relationships with one another, and it was these relationships which helped learners to settle into their studies, and to reduce early anxiety. Where such close connections did not develop, students engaged with their learning in a more individual, closed way. A number of factors which were important in the process of making connections with peers, and it emerged that the tutor's input was vital.

4.3.1.4 Existential challenge

One of the course modules was "Existential and Human Issues" and dealt with issues such as anxiety, freedom and death. This was also the overall theme for the course, and thus student learning and discussions often focused on these issues. On occasion, students encountered experiences which mirrored some of the course content, such as feeling overwhelmed by the amount and the content of learning:

Jo: Umm I remember on the Existentialist course umm doing hours and hours of reading umm of existentialists one day and err having an anxiety attack that night. And that's the first one I'd had for years- years and years and years. I'm not quite sure what caused it- I don't know whether it was just over-stimulation of my mind, or what. Umm and after that, I slowed down… I don't think... it... affected the learning negatively though, I think it just made me aware that I needed more time, that something was really happening and that I wasn't quite sure what I was going to do with it and I just needed to take it a bit more slowly and just put a bit more umm distance between myself and the material.

The student developed ways of managing their own learning by doing the reading in shorter doses, thereby remaining more physically grounded. The same student also reflected on her search for meaning, prompted by the existential ideas presented in the module. This proved to be a process by turns invigorating and disturbing, leaving her with a sense of inadequacy and also an uncertainty about what to do in response to those feelings:

Jo: And I think that kind of course makes you think about- makes you think quite deeply about your life and I think it made me realise that I'm actually or have actually been quite unhappy

where I am but I'm not doing anything about it because I daren't and I think that made me feel very uncomfortable umm a lot of- of the time in the course.

Other existential thinking related to the idea of extreme situations:

Keri: There was once when we were in the chatroom and [the tutor] said something about how somebody touches rock, you know, rock bottom and then arises from there and gets resilient, umm, it was just a very very short statement, of course it was [the tutor's] statement, so I thought she's chewed on these kind of things for a long, long time but umm, that touched me umm simply because I was reminded of some challenges that I was going through, and it kind of- it, it, that statement inspired me- I kind of noted it down for myself somewhere…

The student responded by commenting that to her surprise, the online environment allows people to be authentic (another key existential concept), and this is both surprising, and a very powerful tool for enabling emotional and cognitive learning.

Some students found they were not disturbed by thinking about and discussing difficult topics such as death. For example, Elizabeth had taken a philosophy degree previously, with an existential module, and therefore she found that she wasn't upset or disturbed by considering existential topics. However, other students did find ideas presented in the modules disturbing:

Andrew: I can't remember which module it was, I think err "Development through the life cycle" or… umm, I just remember there were a lot of theories err dealing with err the issue of death and anxiety and err thinking about these things were a bit, yeah, uncomfortable, let's say… I found myself even now being a bit disturbed by

and some experienced uncertainty over what to do with emotions aroused by learning. This seems to have been in part due to the lack of closeness with online tutors:

Jo: Yeah, so that- I think if there was one thing that I would want- if I was doing that again- I think I would want from you or from like whoever was running the course umm perhaps more guidance or err something along [inaudible] "this brings up a lot of stuff and what?" you know, "And now what do I do with it?" But really, I mean that's not really, you know, I don't think that's really your remit as a, as a tutor to deal with that, not maybe- not you personally, but- a tutor might have some suggestions. I don't know, you said that we could email you but I felt, I, I didn't a) because I felt perhaps that I didn't really know you well enough and b) I was kind of aware that you were the tutor but are you also a therapist and so I, I thought "Is it kind of taking advantage?" you know?

However, this same distance may also have contributed to students' ability to experience existential challenge over life events, and receive positive affirmation of life choices. One participant realised during the existential module that she had been unhappy with some of her life choices, but also that, in terms of her vocation, what she ended up doing was exactly what she should be doing, and this realisation was a lightbulb moment for her. The student who had a breast cancer diagnosis found the existential module, and the peer relations and discussions therein, very useful for her in coming to terms with what was happening. Another student found that simply the mix of backgrounds and experience among fellow

learners was important in recognising that there were perspectives other than his own, and meant that the existential approach ended up influencing his clinical practice. There were also ways in which the course evoked or afforded emotional reactions which are often considered through an existential frame, e.g. the dread that a student experienced when he tried to submit his work online, but made a mistake in the submission process. It seems, from all participants' comments on their responses the modules, that the "onlineness" was a critical factor in their experience.

To summarise, students found that studying existential issues online was a powerful combination, for a number of reasons, but largely due to the space which online learning provides for personal reflection, along with the opportunity that e-learning provides to make careful judgements about when and how to disclose personal issues to others in the learning community.

4.3.1.5 Fun/humour

Students reported how important it was to experience a sense of fun, and pick up on one another's humour online. One participant reported how, having never experienced a chatroom previously, she was very surprised that chatrooms could be enjoyable and fun:

> Rachel: I remember once we had a kind of virtual tea party, err, I bought the chocolate biscuits, someone bought the banjo, and we all had a sing-song [laughs]… which was- so fun, there was fun the in the chatrooms as well

She found this conducive to learning because it relaxed learners and encouraged openness. Where students used humour, it was a reassuring sign that they were pleased to be there, and pleased that others were there too:

> Rachel: because I'd never done chatrooms before at all, so umm the, the fun, the fun actually, that I was able to have fun online, perhaps that was my most "aha" moment, that I could actually enjoy this, and, and feel, feel as though people were present… the energy, in the chatroom, we did kind of bounce off each other more, because it was spontaneous, it was immediate.

Spontaneity allowed humour to play its part in interactions. A couple of participants spoke about how they engaged positively with the synchronous chatroom sessions, e.g.:

> Jo: And then umm I said that [student B] and I gelled from the beginning somehow, and in the chatrooms, those chatrooms were honestly at that time the highlight of my week, and I would be sitting- cos I did them at work, err, in my time, [home country] time, I was at my workstation- and sometimes especially with [student B], I would be howling with laughing because he was so funny and people would be coming over to see what was going on, and it's like "I'm just in this chatoom, and this guy's just said this, and derr derr derr"

To summarise, participants were surprised at the amount of fun/humour experienced online, when many had assumed online learning would be a distant experience. This humour played an important role in enabling students to connect, and be open with one another.

4.3.1.6 Emotional disclosure

One of the most powerful aspects of the course was the ability of the online context to facilitate self-disclosure. This was usually prompted by questions placed in the course materials to get students thinking about their own experience, and which students were invited to respond to in the discussion forum. It was left up to students which questions to respond to and how to do that, but typically they would be asked a question such as:

"Think about a time when you were feeling particularly anxious about something. Post a message to your tutorial group about what was happening at that time."

Disclosing information about difficult situations or emotions was a way in which students were able to connect the theory (as presented in the course materials) to their own experience. It also seemed to engender deep connections with peers when the disclosures were acknowledged and when the person sharing the information received affirmation or support. It was notable that some students were quickly sharing very personal and intimate material with one another, even after a couple of weeks of the course, and they were doing so despite knowing relatively little about their peers. There seemed to be something about the online context which disinhibited them or which engendered feelings of trust within the group. Several students contrasted their behaviour online with how they would have behaved in a face-to-face group, suggesting that in a F2F setting, they wouldn't have admitted to or discussed many of the things they brought to the group:

> Jo: I think [being online] gave you that bit of, of distance, bit of, I suppose, anonymity in a way... I find personally, I find it quite difficult to discuss emotional things with people I don't know very well. I, I'd tell my friend, you know, sort of everything, but I wouldn't dream of doing that in a classroom. And... if I did, I think it would take a very long time, I think I would wait for quite a long time to just make sure, you know, who these people are, what's the set-up, you know... I'm not quite sure what it is about the online environment that makes you, makes it easier...

She thought that a factor in this was that online, it is easier to get one's point across without being interrupted or challenged. She went on to talk about disclosing difficult emotions:

> Jo:... and the stuff we got into in the discussion forum was, you know, incredibly personal really. You were telling umm complete strangers really personal stuff about yourself and it was, I think, a bit like group therapy as well as as umm learning... you know there was, I think, group therapy going on, umm, and I get the feeling that I perhaps wasn't the only one, I think there were a couple of other people in that group that were affected in, in, in the same way

The self-reflection involved proved to be hard work, akin to group therapy, but the result of this "emotional labour", for some, was greater self-awareness:

> Jo: but pushing through [feelings of discomfort and unhappiness] was good because it also brought a lot of insight

However, there are important differences between the extent to which individuals felt comfortable engaging in self-disclosure online. One aspect of this was the time taken to settle in to the course and feel comfortable in self-disclosing. A participant who, in her first module, did not say very much, was in due course able to open up:

> Keri: I remember some, some wonderful moments during that particular [module]. Umm, I'm not sure whether it was because it was my third one and I was now used to learning in this mode. But that or this which really sort of made me feel more comfortable… with talking a little bit about myself too.

Asked about her experience of being online with others, she said that postings which touched her tended to be where they were able to give an insight into how they'd gone through challenges, pain or sadness. However, self-disclosure inevitably provoked anxiety, and some participants would have found it easier to do in a face-to-face context:

> Andrew: and umm…. during the course, I mean, talking with other students umm I mean if it were face-to-face, maybe it would have been a lot easier, but just bringing it up in the forum… felt a bit embarrassing, let's say, I mean, even talking about these things face-to-face- "Oh, I've been experiencing this and that, what about you, did you have that effect while thinking about this concept?" umm would- might have been a bit easier but umm

One participant located this reluctance in the fact that the course was an MSc, rather than an MA, and therefore - in his view - not suited to emotional self-disclosure; he felt that on an MA, which in general he would have preferred, he'd have been encouraged to bring his own experience more into his essays although he was pleased to have done an MSc because it was more scientific, and he believed the qualification would carry more weight than an MA. This view was not expressed by any other participants, and wouldn't have been espoused by the teaching team, but clearly students' own expectations and beliefs were important as they evaluated the course, and considered the role of emotional disclosure within that.

Not all participants agreed that self-disclosure itself was easier online, but some thought it might make it easier to manage the emotions within that:

> Felicity: So if I was, if I was self-disclosing within one of the forums on a particular topic… it would be much more a just a sort of stream of consciousness without having the affect, whereas if I was in a group, telling it, people's immediate responses and so on would be likely to take me into that emotion, whereas I could write *about* it, on a forum.

This was also true where the emotions being disclosed, or withheld, were emerging from personal events outside the course during the same timeframe. Students were able to use the relative anonymity provided by the online course to manage their emotions - referring to

the strong emotions aroused by her bereavement, and ways of managing those, Sarah commented:

> Sarah: so I used the distance…the anonymity…to tuck it away and forget about it (not to forget about it) but not to deliberately bring it into the room… content was slightly different, that might be part of that decision, but it would have been too much... for me to do that there… and it, it's very hard to say, it's really hard to say whether that is exactly what allowed me to continue at that point whereas if I was walking in to a University building and seeing everybody, would that have been different, I really don't know, don't know

An important aspect of self-disclosure is the extent to which it is attuned to the group, and the kind of reception it receives. Speaking about disclosure made by a peer, one participant recounted an incident where a student made a major and potentially contentious disclosure, about a retrospective issue, in an online group:

> Sarah: I think it, it made us all go "Oh! Right! OK, so there was something criminal, there's something, yeah, on the edge of something there", and it was, it was the response to that, there were a mixture of responses, and this is all my subjectivity of course, but… of umm, "Well that's ok, cos you're not like that now" [laughs] and "oh, you know, thanks for sharing, you know, don't feel like you have to say any more" [laughs]… it was like a little mini-explosion that went off and then what, what happened in response to that.

Some participants said that the medium did not seem to impact greatly on the likelihood of self-disclosure, and it worked very much as it would do in a face-to-face group:

> Rachel: I felt it worked very much in the way it would have worked if we were all together, you know, actually in a group… umm some people would obviously umm be willing to disclose and, and others wouldn't, perhaps initially, and might, might sort of, or they might take longer. Umm I felt OK, err disclosing my personal experiences err where I felt it was appropriate, and I think, to be honest, it really didn't make any difference- I don't think I'd have done any more or less if I'd actually been in the room umm because I felt- so I obviously did feel safe enough

There were also reports that the ease with which one could self-disclose varied from group to group:

> Michelle: Well, I really would say, no I definitely would say it's probably like in real life, you know? When I feel , when I feel in a group of people I feel comfortable, when I feel like not judged or not whatever, you know, not excluded or these kind of things then I feel yes, I can open up, and I had that same sense in the course… I really think that's also different with different courses… I mean, I can even say which ones. There were cour- there was one course where I really had the feeling, "No, no" I really did not quite connect with that err group of people

Some participants were equivocal:

> Shaun: I would say, yeah, I could identify with people holding back, I would say yeah, no, definitely with some things, I would have probably held back a little bit in discussions with peers, and I would have been surprised sometimes with what some people would umm, would err, [inaudible] routinely put on the forums, and sometimes I'd surprise myself with what I'd put on the forums, I'd look back and think, "Gosh, did I put that?" and "God, I did, yeah, that's amazing, you know, I wouldn't have put stuff like that out there before" but that's how I feel so I can stand over it. But, yeah, and I think that's something maybe the longer we're on the

course, you get more used to maybe sharing a bit more online, I dunno, that seemed to get a bit easier.

To summarise, there was an interesting diversity in opinions and experience about the extent to which self-disclosure was facilitated by being online. Some participants found it much easier to self-disclose online than in a face-to-face setting, while others reported that disclosing was harder online, or that there was no difference. There was suggestion that the ease of disclosure varied from group to group, suggesting that it was either in response to a particular module topic, or that it was a function of the group of learners (tutor as well as students). The variety of responses might also point to individual differences in learners' predispositions to engage in self-disclosure, or in the ways they respond to the online environment.

4.3.1.7 Shame

Students on the programme reported being keenly aware, in the early stages of the course, that they might write something, in the forum or chatroom, which would betray their inexperience compared to their peers, and make them feel silly, daft or ashamed. This seemed to be exacerbated by the permanence of postings, which could be viewed and reviewed by peers and tutors after submission. One participant experienced feeling daft in both the forum, where it was often experienced on re-reading an exchange, and in the chatroom, where it was felt in the moment:

> Elizabeth: initially when I first started, I just naturally assumed everyone would be more intelligent… what I was worrying about which was "what are you talking about?" [laughs] so it- you could… everyone seemed to think that they would be the, the daftest person on the course, so I think we were all in the same boat

So this shared sense of "feeling daft" lessened the impact of any shame that was felt. She felt that saying something daft in her course was acceptable, but doing so in a therapeutic situation would not have been, and this contributed to her rejection of the idea of working as an online therapist. Jo felt a sense of inadequacy relating to clinical experience:

> Jo: Umm, I soon realised that I was quite out of my depth in a way that everybody else was actually a therapist, and knew- had a lot more background clearly than I did

This could have led directly to feelings of shame, but she realised that some of her peers also lacked clinical experience, and in time, she grew in confidence that her life experience was valid and allowed her to comment on most clinical issues. Rachel experienced similar feelings of inadequacy, which were made more acute by simultaneous doubts about IT skills:

> Rachel: Umm, err, but I do remember in the first couple of weeks when I did get on the site and I was, you know, doing posts on the forum, and the very first, very first post I read sounded terribly knowledgeable, and I just read it, and I thought, "Oh my goodness, umm, you

know, am I right for this at all?" So a feeling of, a real feeling of inadequacy and fear of failure at that point. So what with the failure of IT and then reading these posts which all sounded all terribly confident and knowledgeable

Students also reported feeling uncertain about how they were being perceived by peers, and whether they were liked and valued or not. Jo commented about a feeling that others didn't like her:

> Jo: his name was [student A], and I used to think "He doesn't like me. I'm sure this guy doesn't, I'm sure this guy thinks I'm a bit of a fool" and, umm, I just had this feeling from his posts- what it was, I don't know cos he was never impolite, he never said anything… but umm, yeah, I was always quite careful when I replied to… [student A], because I just got this feeling that he was like "Oh, what's she, what's she writing about? Ooh, she doesn't really know what she's talking about". Which was quite true. But anyway [laughs]

To summarise, although the absence of "the look" might be expected to lead to an absence of shame, and indeed this may explain some online behaviour such as disinhibition, the experience of "feeling daft" and potentially ashamed was reported by a number of participants, particularly in the early stages of the course. This seems to be linked to the nature of online communication, where both asynchronous forum postings and synchronous chatroom sessions, involve making a written record of one's thoughts, without the contextual nonverbal feedback inherent in a face-to-face encounter. This gave rise to potentially exposing and therefore shameful experiences. There was also uncertainty about what others thought of you. Levels of shame decreased as students realised that others felt similarly insecure, as relationships with peers developed and as they grew in confidence.

4.3.1.8 Isolation

The experience of learning on the course was physically isolating, and sometimes emotionally isolating too. This was most acutely felt during early IT issues, where the connection with others had not yet solidified:

> Rachel: … if I lost work, if I was writing a post and it suddenly blipped out… and felt quite isolated at that point

Students generally reported good levels of interactivity, and low isolation, during modules, the exception being whilst completing assessments:

> Rachel: I think when I was online, and, and posting in the forums or whatever, I felt part of something, but I think actually writing the essay, I felt quite isolated

Discussion forums were provided during the dissertation for students and tutors to interact, but these were optional, and not well utilised. Several participants found the dissertation an isolating phase, and some reported that this was not enjoyable. There was nevertheless some value in being able to identify with others' emotional experience:

> Keri: So I, like I've already said, umm somehow although we were not talking about any major subject and learning, just the sharing of anxieties on the dissertation forum was very very helpful… although what I was doing, I was doing on my own

In general, these more distant connections were less satisfying and rewarding for students:

> Felicity: … and of course with this err I can't even remember the name of anybody who was on it. I can remember a couple of things about a couple of people but nothing to identify anybody umm I can vaguely remember some of the geographical places that some of them were, but you don't get that same sort of bond connection

Some participants consciously decided not to engage emotionally with the course, because they had already done personal growth work before, which was very emotional. Participants were often highly attuned to emotional issues but were also aware that they could distract from the focus; so they deliberately kept away some of the emotions because they were worried they might be too chaotic or disturbing. As a result, the online course was viewed as being more of an academic exercise, which was not as challenging personally:

> Elizabeth: For me at that time, I'd already done, I'd just finished a diploma that was a lot about personal development and growth, and I'd done a lot of CPD around that, so I was ready for more academic, it was qui- kind of a relief… umm to, to focus more on academic subjects rather than personal, I was fed up of talking about myself and thinking about myself, so I liked that aspect of it, actually.

Interestingly, some participants said they were not interested in making friends of their fellow students, and deliberately attempted to avoid getting sidetracked into the emotions of relationships with peers, but they found themselves connecting nevertheless:

> Shaun: I was kinda surprised how connected I did get to people umm some of whom I'd never have contact with outside of that course, d'you know, or never would have contact with but that was a surprise to me, and a pleasant surprise.

One participant described being "reconciled" to the lack of friendships after the first module where she realised that making connections was going to be difficult for her, although she wondered whether there may have also been other factors:

> Keri: Now whether that again has to do with who I am err it could be my culture, it could be my age, err how, how much do I want to, err, you know make friends online. Or I find because I don't, I don't use most err other umm, you know, media, thing like Facebook and the like, umm I use, I use all of that for very- also skype and hangout- for very specific kind of interaction. So that says something about me, coming from a little more kind of age of a traditional mindframe

This seemed to be related to different ways of being (online and face-to-face) – one participant reported being far more formal online, and less likely to trust others with talking about emotional or difficult material. She found that she needed the immediacy of face-to-face feedback to feel comfortable and to consider disclosing personal information. She found that she lost touch with her fellow online learners after the end of the course, whereas she had not done so with face-to-face learners, leading her to comment:

Elizabeth: I think overall, I would prefer face-to-face courses… I'm trying to think why that is, really umm... I suppose I like the interaction with people.

Others concurred, stressing the importance of embodied communication with its physicality and nuances:

Charles: Umm, I prefer, much prefer the face-to-face situation because then I can- without realising- I'm observing body language. I'm sensing what's happening. So if I'm talking about some very deep and personal stuff, I cannot give the nuances and the feelings with an online, with email communication… I need to do it face-to-face where like now, I can pause on a word, whereas in an email, it's just typed out. So I might pause for a while in when I'm saying something, I might speak a bit slower, a bit quicker, and what I'm trying to convey comes over much more accurately and from the heart as well, when I'm doing it face-to-face, I just can't get that on email.

There were idiographic factors also. One participant felt on the periphery due to not being English. Another felt particularly isolated during a particular module, Research Methods, where the subject matter was less personal and more generic, and discussion forum interactions were not as busy, structured or engaging as a result. She ended up not completing this module, with the result that she was not able to complete her full MSc:

Jo: Yeah it is [a source of regret], because I would like to say I'd got an MSc and I could have done it but the thing is that I know I could have done it with a bit more... support maybe and pushing I think I, I could have done that.

To summarise, most participants found online learning isolating at certain points, particularly during the dissertation period where students were focusing primarily on their own research, and didn't have the structure of a module to support them, with timetabled regular interactions with peers. Some participants struggled to develop the kinds of relationships which enabled them to feel confident, and willing to discuss more personal issues; they stayed in a more isolated mode. Others deliberately engaged with the course in a more academic, less emotional way, and they seemed able to tolerate the feelings of isolation, knowing that this meant their studies would involve less emotional work.

4.3.1.9 Regret/sadness

At times, the course evoked feelings of regret and sadness in students. This was sometimes related to process issues, or to content, or to ways of engaging with the course and with peers - speaking about asynchronous communication, and having the chance to think about an issue before commenting on it, one participant commented:

Jo: Sometimes I didn't, and I regretted it afterwards in two ways. First because I thought my replies could have been- if I'd thought them through- umm they would have been better and they would have contributed more and also I would have perhaps expressed myself better but sometimes somebody makes a comment, you see something, and you're just like "Ah, I've got to say this. Now." [laughs] And sometimes you do.

Students also experienced regret in response to reflection on previous relationships. The same participant realised, during the "Conflict and Reconciliation" module, that she had an avoiding style, and reflecting on this, via the course materials, brought up feelings of inadequacy and regret:

> Jo: it made me feel like I hadn't handled conflict well in my life before and that if I had been clearer with people in a- about what I wanted in a sort of an assertive way rather than either not saying them at all and expecting them to read my mind of just being aggressive, things could have been very different so I think it brought up some discontent in a way and it made me, it didn't- it made me feel quite bad about myself.

She reflected on her own experience in relation to one of her fellow students, who was at an earlier life stage:

> Jo: Somebody like that, she was like 23, and umm I can remember writing writing in a post to her and saying and really feeling it, saying "God, you are so lucky, if only I'd known this stuff when I was 23 instead of, you know, nearly 53"

Whilst these reflections might pertain to emotions and learning in general, not specifically e-learning, the self-disclosure online, and the type of connections which students were able to make, were important factors in the student experience. While most students chose to discuss emotions which emerged as a result of their learning, or their engagement with the subject matter, technology, peers or tutors, one student (Sarah) experienced a bereavement during a module, which provoked an intense emotional response, and necessitated her leaving a module halfway through – a source of much regret. Strong emotional experiences often required a period of reintegration into the course, particularly where they necessitated a withdrawal or break from learning.

Students reported feeling sadness when a module or course came to an end, although endings were generally easier, as participants didn't all feel strongly attached to others.

> Rachel: I was at the stage where I'd been in various groups before and on various courses and all the rest of it, and I, I, I did see all the relationships as, as, as fairly transitional relationships I think… I felt more upset if people kind of dropped out umm sort of halfway through or something

To summarise, students experienced sadness and regret in response to course content and personal reflections about their lives. The online context was helpful in enabling this reflection through self-disclosure, and discussion of sensitive or difficult material. Course processes also evoked regret and sadness at times, for example around endings of modules and programmes. Some participants reported that the online context made this easier, as attachments weren't as strong; others found themselves surprised by how close they had grown to other students

4.3.1.10 Frustration/anger

A major source of frustration, albeit for a minority of participants, related to interactions with supervisors/tutors, and being geographically distant from the campus appears to have been an issue, as students were reliant on supervisors responding to email contact. One participant reflected on his (lack of) relationship with his supervisor:

> Shaun: [I found] it so hard to get feedback from him and then just had a very, a very, umm- what was the word- disempowered, cos I could take things so far, and then I needed a bit of guidance of feedback from my supervisor to go the next step, and it might take weeks and weeks, it might four to six weeks sometimes to get a response… and in the meantime, I couldn't- or I felt I don't know if I could have or not but I felt like a roadblock, I couldn't do any more, so that was very disempowering, cos there was nothing I could do about it… and the overriding emotion would have been frustration, at the time, yeah… And then I got my result back and that was 47% or 48, something like that, it was a few percentage short of passing, so that was a huge feeling of disappointment at the time then, and more frustration cos I knew I was heading back into a rewrite

Other participants had similar experiences where online contact with supervisors was either not forthcoming, or not deemed adequate to provide the kind of guidance that they were looking for. In addition, participants noted differences in tutor styles, and experienced differing reactions to those, such as feeling that what they had to say was valued by one tutor, but not similarly valued by another tutor on a different module:

> Rachel: I would say that [tutor A] was very good at including everybody. If somebody did say something, [tutor A] would really try and make a comment back umm I don't think [tutor B] did that in the same way, or perhaps didn't always get what, I don't feel [tutor B] always got what people were saying.

The mechanics of the course were not often spoken about in emotional terms, although negative feelings were voiced when there was a technical problem with the website, such as registration and access issues:

> Rachel: So to begin with, a lot of frustration err because of the IT problems… umm or what I perceived to be the problems, umm and at times anger, if I lost work, if I was writing a post and it suddenly blipped out

or problems attempting to submit work online:

> Charles: I hadn't pressed the button- thought that it had gone but it hadn't gone. So I spoke to [the tutor] and sent it later on. So I'd missed the, the, the closing date., simply because of a simple error on- because I wasn't able to concentrate to my full capacity- I'd gone on the whatever it was, is it Turnitin or whatever, and I'd not pressed the last button. So that was a low moment for me at the time.

The emotional response of others was experienced in different ways, at times, than it would have been in a F2F setting. The lack of physically embodied emotions, and co-presence, provided a kind of buffering, with both a time delay and a protective or distancing effect:

Rachel: umm so perhaps in that way, it was, it, it it didn't feel so, yeah, anger didn't feel so immediate, perhaps, and, and hurt didn't feel so immediate

This also applied to so-called positive emotions as well as negative ones:

Rachel: Funnily enough, happiness seemed to come across quite, reasonably well… I suppose I felt a bit protected, yeah… I felt a little bit protected… because I wasn't actually in, in a space with people.

The synchronous elements of the course were sometimes identified as frustrating, with the speed and unpredictability of chatrooms being a major concern, along with the difficulty of following an individual conversation during a fast-flowing dialogue with many co-existing discussions:

Michelle: Chatrooms were so [laughs]... they were always quite challenging, because, because of all kinds of reasons, you know? The technical thing, and sometimes not being able to follow the reading or being frustrated cos suddenly I wasn't in touch any more

The technical aspects of a chatroom could engender emotional responses as unintended consequences. An example was where connectivity issues caused a delay in a dialogue but this was perceived by a participant as a deliberate ploy or snub on the part of another student. The subject matter of the course meant that students were encouraged to consider their emotional responses to things which happened during the learning, so such experiences could end up contributing to a student's personal or academic development if they were willing and able to reflect on them:

Sarah: I think there was something for me in that particular chatroom, there was something about my concept of how long it takes for somebody to reply to me, my own stuff of "are you ignoring me? [laughs] you know, "are you not going to join in and play this game?" almost, you know umm and then umm [sighs] and the- yeah, so it was never totally in it, it was always in it and watching it at the same time-

Students did, at times, frustrate one another, and some participants noted their reactions, such as the frustration experienced when a student was making jokes in a chatroom session and repeatedly taking the discussion away from the content of the tutorial, which necessitated an intervention from the tutor to refocus the discussion:

Elizabeth:... it was kind of a strange thing to be sat on your own behind the computer screen and be irritated or umm want to say something and then feel like you've kind of gotta leave it, see where it develops…

The same participant found the "small talk" in the first 15 or 20 minutes of a session to be frustrating, although she recognised that others would have valued this more than she did:

Elizabeth: I suppose it's, it's what you wanted to get ou- I was sort of more on a trying to get more academic out of it, I suppose, than, than friendships and… so I was, I was a bit more "Come on, I want to get onto the meaty stuff" and talk about these things...

Others found that having to type out their thoughts in a chatroom was a barrier to engagement, as it was time-consuming compared to talking, and difficult to get one's thoughts across sufficiently quickly:

> Rachel: sometimes it was very frustrating as well, in the chatrooms, because err it would get very fast and very quick… Other people would, would sort of slip in and out, because the internet connection wasn't very good. So I felt frustrated for the people when they couldn't get a good connection, and sometimes I was frustrated with myself if I wasn't able to, or, and something, if it got very, very quick [inaudible] something I'd said got completely passed over.

It was difficult to keep track of the various threads, and those students who couldn't type very quickly felt at a disadvantage. Keri commented:

> Keri: …perhap err I was also err technically handicapped in the sense that I couldn't type as quickly because those were the times when- I don't know, I think it changed, but we used to type in when we were on our weekly classes… in the chatroom, that was, and I couldn't really umm put in too much, and if at all, it was very short phrases.

Sometimes the frustration was interesting to students:

> Sarah: this [one chatroom session] felt really vibrant, and like there was lots, and people seemed to miss each other more and I, for my part, I, I really umm went on a dual level of thinking "This is experiential learning, so I'm going to go for it" and then thinking "Oh god, I am actually really getting involved [laughs]. I'm getting quite annoyed" and I was getting quite annoyed with people umm in situations where I felt that somebody had said something that might have opened up and it was kind of gone over- it felt like it was- like being ignored-

Related to this frustration with the speed of interactions in the chatroom, there was some frustration at the lack of social opportunities on the course. It was felt that students meeting F2F at a University would be available after a lecture for a chat, and for coffee, and these kinds of interactions are where friendships could be built, whereas in online learning, these same opportunities for socialising did not exist, and communication was all oriented towards the course materials. Some participants felt they could have done more themselves to develop connections with others. But in this context, asking personal questions is difficult:

> Andrew: I would find it weird just to send a message to someone directly just to say, "Hey, how's it going? What do you think of err the module?" or just like the normal socialising context would be a bit weird, basically… umm in that situation, whereas if you're face-to-face in a University, outside the lecture room you can just chat and just discuss some of the topics, and then just talk about the weather, what have you and err, it wasn't err yeah… as natural as a face-to-face situation…

There was a related issue around frustration with a lack of continuity in student groups, so it was difficult to develop longer-term connections with students because groups would change with every module, as opposed to attendance courses:

> Felicity: … if you were doing a live course, that's a big difference, of course, because if… you're seeing the same people every week, for two years or whatever it is, the bonds become really strong

The lack of direct sensory information from fellow learners online caused frustration in a number of ways. Firstly, students missed the contextual information such as tone of voice, body language and real-time reactions, which helps to understand someone's point and the strength of their feeling. Without all this information, and only going by typed text, the process of understanding takes longer, and it can be easier to misinterpret or misunderstand. Not all participants were concerned about this, but some did find it frustrating, felt the lack of more immediate contact, and thought that it was much harder to make emotional connections with fellow students online:

> Charles: I felt that emotionally, I was always playing catch-up on the course, and that is down to me, don't get me wrong, but of course, if we'd have had telephone contact earlier in the course, and perhaps skype as well, then that would probably have made it easier because trying to communicate with emails isn't as effectiv- I mean, one telephone call can be more effective than a dozen emails, if you like.

Andrew reported feelings of frustration around his own levels of clinical experience (an issue which caused others to feel inadequate (see 4.3.1.7- Shame):

> Andrew: I guess it would have helped more if umm I had more experience or if I was working in the field to better understand umm some of the ideas, some of the theories we were talking about or umm reading about… and I, I guess during the whole course I always had this idea at the back of my head that, "Oh, maybe if I was actually an experienced psychotherapist, I would understand this better or it would make more sense or"

Personal experience and challenges caused frustration and anger at times. The challenge may have arisen outside the course, but its effects felt within it, e.g. one student's particularly difficult and frustrating experience of dropping out of a module due to bereavement. But insofar as we are discussing emotional experiences caused by or impacting upon online learning specifically, there were plenty of examples, such as where the course content was troubling or difficult to assimilate:

> Jo: I remember writing something saying "This material just makes me irritable and umm annoyed and I feel irritable"... I think that was because it was getting a bit too close to comfort and I was like you know, trying to, umm- what's the word- yeah just put some distance I think-

Certain modules were disliked by particular students, and this may have stemmed from the module having a more independent and less interactive aspect:

> Sarah: so the research methods module, felt, felt tiring and dull, and I felt "ohhh" you know, and it's, and I think it was a lack of engagement with the material itself although the the stuff, you know the content itself I like, but it was something different about how we engaged with the material I think-

To summarise, various aspects of students' experience caused frustration and anger, with supervisor relations being most commonly cited. Students reported being particularly isolated during their dissertations, and where regular contact with a supervisor was not forthcoming, this was seen as a significant barrier to progress, and a

cause of much stress and frustration. Some students were frustrated by the lack of opportunity for socialising on the course, and some missed the feelings of closeness which physical meetings and co-presence can bring about. At times, students frustrated one another through their interactions, and the lack of visual contact seems to have exacerbated this, and led to the potential for miscommunication and upset. Students were sometimes frustrated by personal issues or by a perceived inability to participate fully in a part of the course, e.g. a lack of experience leading to an inability to contribute. In terms of the mechanics of the course, not many comments were received, but chatrooms were found to be frustrating due to the speed of the dialogue, and occasional technical issues which made it difficult to participate fully.

4.3.1.11 Satisfaction/pride

A general theme throughout the interviews was feelings and emotions relating to the satisfaction of being on the course, making progress and passing milestones, and levels of pride (and disappointment, frustration and regret) associated with these achievements. There were surprisingly few direct mentions of "satisfaction" or being satisfied, but plenty of examples where students spoke about enjoyment (these may be included under other headings such as 4.3.1.2 "Engagement with content/process"). This sense of satisfaction in learning was summed up by the following comment:

> Felicity: I rea- I really enjoyed the process of reading the materials, getting on the forums, writing the answers, responding to other people umm writing the essays, rather than actually umm what I learned from it… it's the doing it, it's that intrinsic enjoyment of, and the challenge of, of the doing it… that really is what motivates me.

Students were often prompted to reflect on their achievements when they arrived at thresholds, such as the end of a module or the completion of an assessment, and they would then speak about feelings of pride in their accomplishments. An example was the following reflection on submission of a dissertation:

> Sarah: umm but yeah, so I think there's the, there's the achievement thing that you get when you finish anything… it was always about getting stuff out there, umm, so there was relief, I had a, a huge amount of relief on that… and then the moment I think that I got it bound was the moment umm I, you know, I thought... "wow, you've do- you've done it... you've actually finished it, you finished something"

This relief at having "got through it" was often mixed with anxiety about what the outcome of the assessment would be, and with feelings of pride, e.g.:

> Shaun: I didn't know what was expected and then putting an awful lot of work into that first module, and then when I passed it, God, that was a great relief, and um [inaudible] a sense of self-belief the again maybe I can do this so crack on from here

Where the experience had been difficult, sometimes the relief was dominant and, there was

no room for other emotions:

> Shaun: Like, I know, umm, previously or when I got my first diploma like, there was joy, and there was a feeling of being proud of myself, I didn't have any of that at that time, it was just relief, was "Hah" like "God, thank God it's gone…"

There were also overall feelings of pride associated with being on the course:

> Rachel: so I did feel part of something, and actually, the other thing I felt was quite proud of doing an online course… cos I'd say to people and they'd say "Oh, all online?" "Yeah, all online" you know, so in the end, I felt quite proud of doing it.

Recounting his feelings of completing the course, Charles commented:

> Charles: I think for me, there's another emotion now, and it's one of great pride, great pride. I'm really proud of myself, for staying, for staying with it. I thank my wife and [the course director], and I put in a thankyou enormously to these people who supported me. But I do feel a sense of achievement now…

To summarise, students experienced satisfaction and pride relating to progression through the course, and attainment of milestones and qualifications. For many, there was a sense of great relief at completing their work, as the experience, whilst stimulating, was not without its challenges, and this seems to have made their achievements feel all the sweeter.

4.3.2 Summary of Study 3

As one might expect, there is significant variation in the experience of e-learners, influenced by factors including their own motivation to engage in learning and with one another, their personal preferences for interacting with peers, events in their personal lives, and academic progress through the course. However, it is possible from their descriptions to trace learners' emotional trajectories over their period of study and to detect common tendencies in the "learner journeys" that they have been on. (It might also be possible to quantify this if appropriate quantitative data were collected.)

These "learner journeys" are presented in detail in section 5.1.3. Given that numbers of participants are relatively low (n=10), and that, as no comparative data are available from face-to-face learners, there is no comparison with the experience of attending students, the findings must be treated with some caution.

5 DISCUSSION

This final section will put the findings of the research carried out in context with what was learned from the literature review, consider the effectiveness of the methods used, and suggest implications for teaching and learning pedagogy, practice and design.

Psychotherapy e-learning, as exemplified by the course under consideration here, was found by many students to offer a highly engaging experience. This was in large part because of those students' ability and willingness to mobilise emotional experiences in pursuit of their learning objectives (which had specifically emotional elements to them). The roles that these emotions played naturally varied from emotion to emotion, person to person, and context to context, but the mechanics of studying online did not inhibit the use of emotions in learning, and if anything, those students who were interviewed reported being more able to experience and engage with emotional issues online than they did in a face-to-face setting. This seems to hinge on the tendency of online interactions to facilitate self-disclosure through disinhibition and to minimize experiences of shame. This apparently richer mode of engagement confirms the results of previous evaluations of the course where both student performance and student satisfaction were higher in the e-learning psychotherapy programme when compared with a traditional face-to-face programme (Blackmore, van Deurzen, & Tantam, 2005).

The literature review examined the research to date on the role of emotions in learning and e-learning, both in general and specifically in psychotherapy, and also the variety of methods used for detecting and monitoring emotions in e-learning. The difficulty of finding a satisfactory definition of emotion was noted, and the review concluded that theories vary greatly on the relative importance of emotion and cognition in learning. Positive emotions are generally thought to be conducive for learning, and are believed to have an optimum level for doing so; negative emotions are more complex, but negative feelings towards topics, fellow students, tutors, VLEs or learning itself tended to be viewed as barriers. However, the current research looked in more depth at some of these emotions, and found that psychotherapy e-learners were able to consider these less as barriers to learning, and more as necessary aspects of human experience, and signs that their values were being called into question.

5.1.1 Study 1

There are a number of findings from study 1:

1. The pre- and post-module scores on well-being measures were not significantly different

2. Scores on the "Scale of Generalized Anxiety Disorder" (GAD-7) and "Satisfaction with Life Scale" (SWLS) were found to differ significantly by partner

3. After completing the *Existential* module, Sheffield students were more anxious, and expressed higher levels of spirituality

4. After completing the *Conflict* module, Sheffield students were more anxious

5. After completing the *Existential* module, Leuven students expressed higher levels of satisfaction with life

6. Measures of spirituality and collaborative learning (peer support, interactivity levels) are moderately related

7. Measures of anxiety and collaborative learning are weakly related (interactivity levels)

8. The "satisfaction with life" mental health measure and self-rated student satisfaction are weakly related

9. No correlation between well-being measures and module mark or weekly activity

Regarding the first finding, despite the fact that overall, the changes were not significant, inspecting students' individual change scores does enable the tracking of individuals, and the identification of individuals for whom there have been significant emotional events or journeys over the course of a module. For example, where students struggled to engage in modules, this was often shown by negative pre- to post- scores, indicating a possible disparity between optimism at the outset of a learning experience, and disappointment at the end of it. These individual differences were most observable on the "Warwick-Edinburgh Mental Well-being Scale" (WEMWBS) and GAD-7 measures. As confirmed by finding no. 2, the scores on a couple of measures differed significantly by partner, and this suggests that student groups (by partner) differed in measurable levels of anxiety/depression and satisfaction with life.

Finding no. 3 is explicable in that the *Existential* module involves consideration of emotionally potent issues such as anxiety, death, meaning and freedom. Students were asked to relate theoretical content to personal experience, and there was a particular focus on anxiety. It is possible that the focus on anxiety during the modules led students to report experiencing more of it. Also, it is not clear whether the increase in well-being arises from the satisfaction of learning with an online group, the depth of experience, or some other factor(s). Interestingly, after the same module, Leuven students reported higher levels of well-being (from SWLS). The modules were implemented somewhat differently by different partners, and but it is not clear whether these differences in implementation were the reason for differences in change scores in the outcome measures, or whether some other factors may have been responsible. For example, Leuven recruited only practising psychotherapists,

most of whom were resident in the same city and many of whom were previously known to one another, so there were likely to have been stronger bonds initially between students, and possibly a greater "cohort effect".

In the *Conflict* module, Sheffield students also reported an increase in anxiety. Discussion forum data suggest that during the course of this module, students are reminded about various conflicts they themselves have experienced, and once they study this topic, they seem to notice and even experience more conflict - as an example, in the final chatroom session of one of Sheffield's *Conflict* modules, a student commented "yes, have stopped avoiding conflict, now find myself in more of it and being shouted at!" (see Appendix XVIII). (This is also supported by interview data where the conflict module stirred up feelings of inadequacy and had a negative impact on self-esteem, e.g. p. 172-3.) Given this increase in personal conflict, it is not altogether surprising that students reported feeling more anxious at the end of the module compared to the start. It is unusual that the findings are only true of one partner, and this may point towards differences in student population or pedagogical approach to learning - further research could be conducted to find corroborating evidence from the LIWC or by hand-searching the forum postings.

Given the research design of testing before and after modules, without longer term follow-up, it is not known how long any of the above effects last, and whether students' levels of depression, anxiety, well-being or spirituality return to pre-module levels or not. A number of students did report the impact that modules had on them, as reported in the qualitative analysis.

Study 1 showed that the "Well-being" measures were useful for picking up changes in individuals' emotional states, but that they didn't relate very well to measured levels of collaborative learning (4.1.2) or satisfaction (4.1.5), and bore no relation to other potential measures of engagement such as student activity (4.1.4) or module mark (4.1.3). This is not a surprising result bearing in mind the following factors:

- The measures were applied to a relatively small data set

- Change scores (week 10 – week 1) were used, thus oversimplifying the trajectory of students' emotional experience, which is very likely to be complex and ever-changing

As the causality of these relationships is not known, and indeed the emotional impact of collaborative learning practices is yet to be defined, the "well-being" measures cannot be shown to pick up on students' emotions with sufficient sensitivity or consistency to be useful tools, at least not in the ways they were implemented in this research. The "well-being" measures may be more effective in tapping in to more general goals such as transformational/ life-long learning and self-development, but further testing would be

required. Other important factors such as the optimum frequency of measures would also need to be established, as this is likely to impact on both their effectiveness as tools to measure the role of emotions in e-learning, and also their acceptability to e-learners.

A note on the data- when tested for normality, the majority of data was found not to be normally distributed, and this is likely to be because the student population was a non-clinical population with generally good levels of mental well-being. This can be seen in the figures for "skew" (Appendix XXIIb) which show a tendency towards positive (i.e. better than normal) results. It was not considered necessary or helpful to undertake any "transformation" with data to improve normality, so where required, tests with appropriate assumptions of non-normality were used; even so, quantitative results should be treated with an element of caution.

5.1.2. Study 2

From study 2, which was conducted exclusively with data from Sheffield students, the finding that the amounts of negative emotion and anger being expressed were higher in the Conflict module than the Existential module fits with data from studies 1 and 3; the Conflict module was more likely to stir up difficult emotions, whereas the Existential module offered a different perspective on life's challenges – this could also involve considering difficult experiences, but was less focused on hostility and aggression. It is not immediately obvious why the following findings were observed:

1. collaborative learning (Tutor support) was associated with a decrease in use of *Transformative* language (Existential module)

2. collaborative learning (Interpretation) was associated with an increase in *Negative emotion* language (Existential module)

3. collaborative learning (Reflective thinking) was associated with a decrease in *Social* language

4. student activity was associated with an increase in *Anxiety* language (*Conflict* module)

5. student satisfaction was associated with a decrease in use of *Transformative* language (Existential module)

6. student satisfaction was associated with an increase in use of *personal pronouns* (Conflict module)

7. well-being measure scores (Depression scale of the Patient Health Questionnaire-PHQ-9) were associated with a decrease in *Anger* language (*Existential* module)

8. well-being measure scores ("Spiritual Attitude and Involvement List" - SAIL) were associated with decreases in *Positive emotion and Anxiety* language (*Conflict* module)

Each result suggests hypotheses which in turn would require further investigation, but they all have possible explanations from what is known about the e-learning programme from background and other studies, e.g. finding 6 might point to the more satisfied students being willing to share their own narratives (or satisfaction arising from this sharing). And as these are associations, with no information on causality, it is not clear the extent to which in finding 4, for example, those experiencing anxiety, and/or using *Anxiety* language, were predisposed to be more active online, or whether online activity somehow caused a measurable increase in anxiety. However, interview data points towards the explanation that those who engaged most with the course (in terms of activity) were highly committed to exploring their own emotions, and – through collaborative learning – those of their peers. These processes might involve considering some of the anxieties which we normally try to avoid confronting by, as Sartre would have it, living inauthentically, or in "bad faith" (Sartre, 2003). Whist this explicit focus on anxieties was in keeping with the course materials for this course, it might not make for such an obvious or easy topic on other subjects and other courses.

The LIWC appears to be able to pick up changes in language relating to emotion in online postings. Its usefulness to answering the research question hinges on the extent to which an e-learner's language accurately expresses their internal states (indeed, this is true of any written communication). However, the finding that many of the correlations between LIWC scores and other measures were inconclusive, along with uncertainty for the explanations of those results which were significant, means that it is not possible to say for certain that the LIWC is able to track or measure students' emotions as they are captured by other measures.

This is not a surprising result bearing in mind the following factors:

- The LIWC was applied to a relatively small data set

- As with study 1, change scores from week 1 to week 10 were used, rather than a more frequent analysis which might have picked up more effectively on fluctuations in emotional states

- The other measures that the LIWC scores were correlated with are themselves unproven for measuring online emotion, therefore lack of significance does not necessarily mean that the LIWC (or indeed the other measures) were not picking up on changes in emotional states

It may be that with more student data (i.e. a greater number of students, across different partners/pedagogical approaches), better correlations can be obtained; by using more extensive sampling of the corpus for analysis via LIWC, a more accurate picture of the way in which language changes can emerge; and by refining other measures, there can be more confidence placed in the significance of correlations. Given the timeframe of this study, and the intention to use and evaluate a number of different approaches to the data, a more detailed and systematic use of LIWC was not possible, but by embedding linguistic analysis into an e-learning course, and visualizing the data in a way that students would find most useful, it would certainly be feasible to provide learners with continual feedback of their emotional state as extrapolated from the language they use online.

5.1.3 Study 3

Findings of study 3 can be summarised in a number of ways, but in keeping with the narrative approach to interviewing, it seems appropriate to describe the results in terms of "learner journeys". The focus here is on emotions associated with the "online-ness" of the experience, rather than more generic learning processes, although at times, these coincide, e.g. the most notable commonality, across all interview participants, was that all learners entering the e-learning programme reported an initial period of uncertainty, which appears to come from the twin challenges of being online and establishing relationships with others. Whilst F2F learners have to cope with the effort involved in what Goffman famously called "the presentation of self" in person (Goffman, 1959), e-learners have a different task, which is to present themselves to others online, and to perceive others via the same medium, in the context of a paucity of information. For e-learners on the Psychotherapy Studies programme, the lack of visual feedback meant that establishing an initial rapport was harder to do, and provoked **anxiety** with both procedural and interactional elements, as is evident from the questions voiced student interviews – "am I doing this right?" "Does everything think I am daft?" "How can I hope to connect with people I can't see?" Most of the students reported feeling some level of anxiety in relation to the start and early weeks of the course. This anxiety may also have had an **existential challenge** to it - feelings of insecurity around one's place in the learning community could have echoes of a more ontological insecurity, with concerns over personhood and one's place in the world. Typically, this **anxiety** reached a peak after the first 2 or 3 weeks, but for the majority of students, it started to subside once they began to **engage with the process** of learning, or with the theoretical **content**, and at the same time forged **connections** with peers, and became familiar with the practical requirements of the course. This **engagement** and **connectedness** started to dampen down the initial **anxiety**. For a few of the students, the uncertainty around ways of being-in-

the-world/online did not subside, and remained problematic throughout their learning, resulting in learning which was more individual than collaborative, less likely to be deep or transformative, and which was not as satisfying.

For those who did start to make tentative **connections** with others during the period of initial **anxiety**, a number of events were cited as being important. Learners suggested that the realisation that "we are all in the same boat" or that "no-one thinks I am daft" was an important breakthrough, and typically it was discussion forum activities, where students had the ability to reflect on postings and on their responses before submitting, where this early sense of **connectedness** began to grow, and where a level of trust with peers developed, along with potential alliances and friendships. In the early stages of the course, most students (as well as tutors) seemed to adopt an encouraging, welcoming, perhaps rather uncritical tone, as they sensed one anothers' apprehension and appreciated that everyone in the nascent learning community needed encouragement to contribute and engage. There was scope for more complex modes of **engagement** to emerge later, with elements of criticism, competition, frustration, disappointment and envy, and **engagement** naturally fluctuated as these processes followed their course.

Once initial lines of communication were open, and students began to feel more secure in a dialogue, opportunities emerged (or were presented to students) to **engage** emotionally with the course material, and to bring these reflections to the group. Students began to sense one anothers' inner lives, to **connect** (and contrast) emotional reactions and experiences. Around this point, there was often a direct **existential challenge** provoked by the course materials, e.g. a request to reflect on a student's own experience of a "limit situation" such as death or separation. This **challenge** often afforded an **emotional disclosure**, and these first few **self-disclosures** seemed to be important for setting the tone of the group's interactions, and what was to follow. Where the **disclosure** were attuned to the group, the person disclosing was likely to receive positive feedback and reinforcement, commonly including thanks for disclosing, recognition of the issue shared or appreciation for the act of sharing a sensitive issue. Some of the **emotional disclosure**, even in the early stages of a module, could be of significant and very personal life events, and some learners reported feeling comfortable in sharing this material, despite the group being in its infancy, and not knowing the participants through embodied interaction. Highly attuned **disclosures** had the effect of giving others permission to **disclose**, because they demonstrated that there were no immediate negative consequences of doing so, and indeed there were positive consequences as described above. They also had the effect of drawing students in to the dialogue to give a reaction - if only to affirm the student's decision to **disclose** - and this quickly led to an exchange of postings in that particular "thread", which built rapidly and

seemingly took on "a life of its own". Initial postings, as facilitated by the tutors, tended to be safe in terms of content, and the amount of emotional **disclosure** needed; where students found that such a posting was met with interest, approval or affirmation by peers and/or tutor, they were immediately encouraged and started to feel more relaxed and confident in making further postings or responding to others' postings. Some students found they were continually checking the forum for replies - the facility to receive notification emails was not always functional – and they reported feelings of being addicted to their studies, compelled to check the discussion forums for responses, and spending much more time than anticipated on the course. Those who engaged in collaborative learning, along with a willingness to be open, were likely to find that this led on to deep or transformative learning, and to complete their programmes with high satisfaction levels.

Reports of postings being made with low attunement were rare, and suggested that either students were skilled at judging the mood of the group, cautious in what they shared, or unwilling to discuss instances (either with peers or subsequently in interviews) when postings were not appreciated or well received. Where reports were not met with approval, it was likely that some form of inter- or intra-personal conflict would occur, with the poster, and sometimes peers, being exposed to feelings of **shame** or **frustration/anger**. There could be associated feelings of **isolation** where personal postings were not replied to – this was sometimes due to low attunement in terms of content, but could also have been due to practical issues, e.g. being posted later in the week and other students not having time to read them. These instances were potentially damaging to **engagement**, with students left feeling unheard or rejected. Where conflict occurred, the nature of online interactions tended to make it more difficult to resolve. Whilst it may have been easier in some instances to back down and accept the associated "loss of face", the lack of visual cues to emotional states also made it more difficult to re-establish levels of trust as they had hitherto been experienced. Where the conflict resolved well, students were likely to be able to **re-engage** with peers and with learning processes; where it didn't resolve well, there was the likelihood that students would be distant from one or more members of the group, and would find that they were learning more as individuals and less collaboratively. There was still the possibility of deep or transformative learning in **isolation**, and some students chose a deliberately non-collaborative approach, whilst still experiencing deep learning. This is in part because the **existential challenges** produced by the course materials also caused students to reflect on their own experience, and this led some students to experience **regret/sadness**. The experience of trying to **connect** with others online also led to **frustration** at times for participants.

These processes are represented in the graphic below, adapted from a model initially developed by myself and colleagues to illustrate how deep learning occurs (Blackmore, Tantam, & van Deurzen, 2008). In figure 12, it has been amended to focus on the emotions experienced as an e-learner enters the learning community and engages with other learners online. The graphic is representative of processes which participants described, but it is important to note that there was variability in the student experience – not all individuals followed a path from "individual" to "collaborative" learning, and if they did, they may not have experienced all of the stages, or done so in the same order. The graphic shows generalized trends, from the limited number of students interviewed, and further research would be required to establish the extent of variability in these journeys, and therefore the evidence for such trajectories:

Figure 12 - Role of emotions in individual and collaborative e- learning
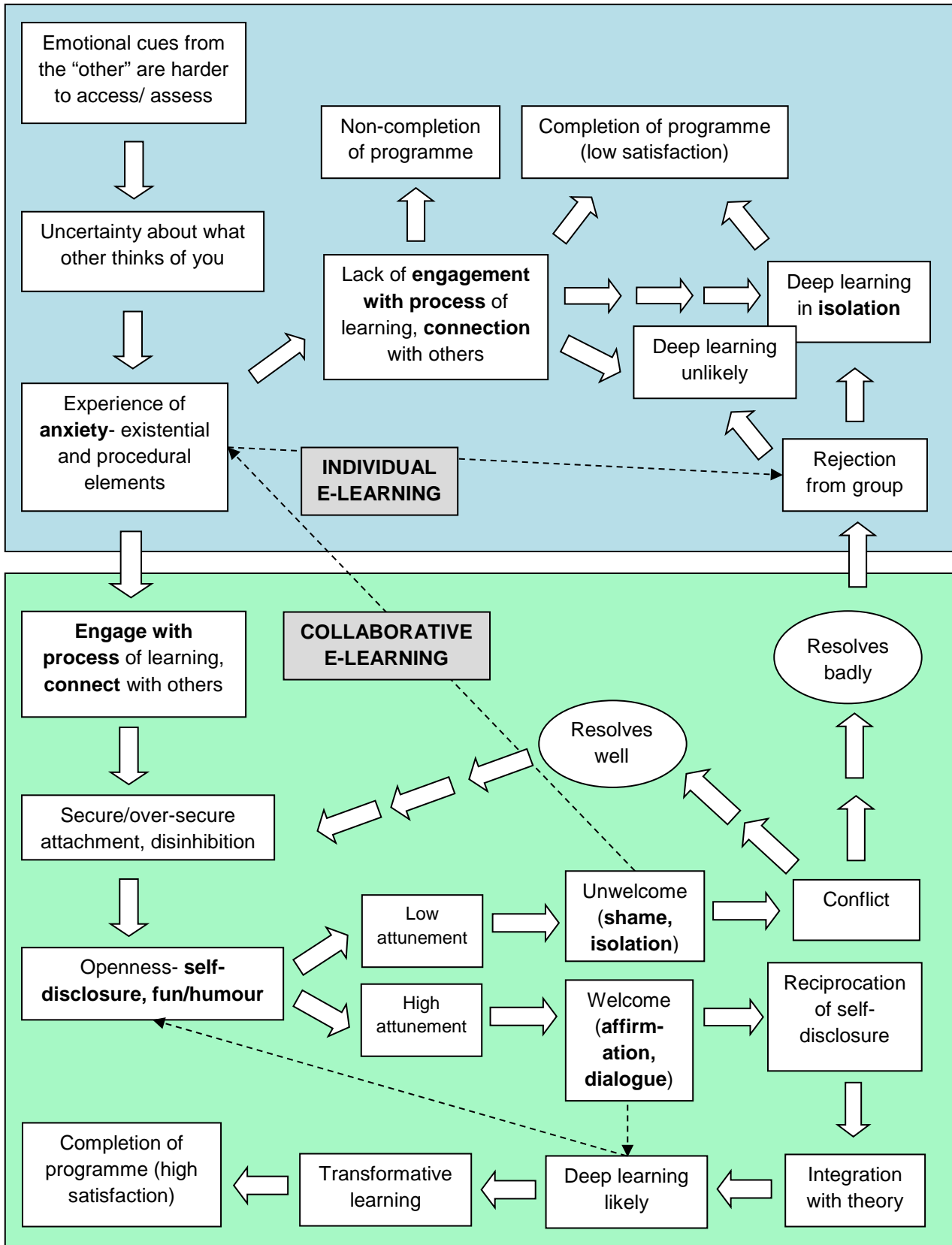
Returning to the entry into the learning community, and the first experiences in the learning environment, an important consideration was the **anxiety** reported by several students around whether they were working at the required academic level, and would be able to work at postgraduate level, and this persisted until the end of the first module when they received formal written feedback on their first assessment. Depending on whether this feedback was positive or not, there was an impact on students' engagement with the programme, and their motivation for completion (although it should be noted that all those interviewed did continue with their studies). Engagement with assessment and feedback did not appear to have an impact on any movement between collaborative and individual modes of e-learning, and some of those students interviewed were comfortable engaging in early collaborative learning despite remaining uncertain about their own academic level. Similar comments as for figure 12 relate to figure 13, which is intended to be representative of trends emerging from the data rather than taken as evidence of such trajectories:

Figure 13 - Role of assessment & feedback in individual / collaborative e- learning
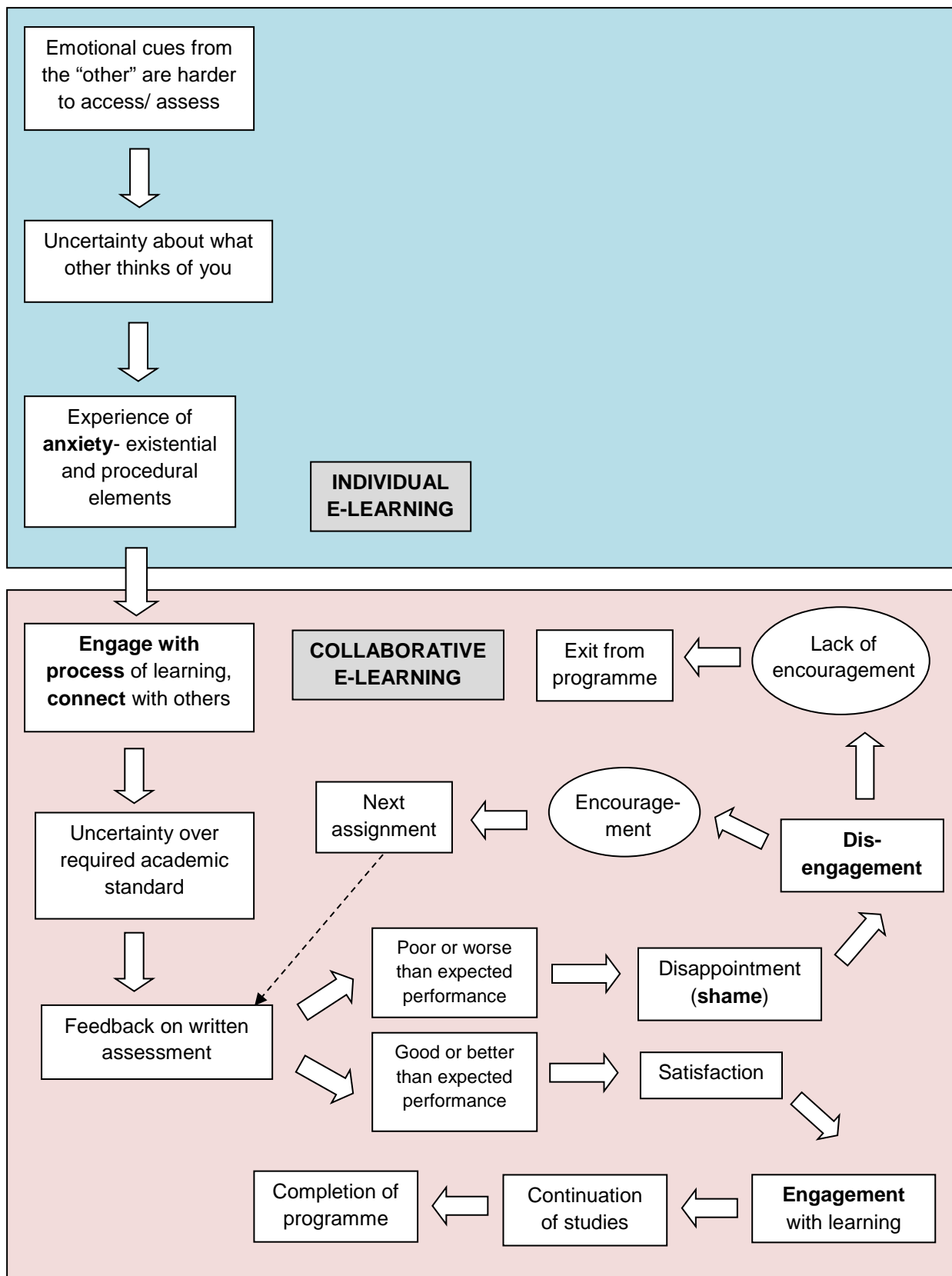
Overall, the pattern of emotional experience seemed to be one of an initial peak of **anxiety**, which decreased with increasing levels of **engagement** over the first few weeks of the course as a sense of **connectedness** grew. The **existential challenges** led to **emotional disclosures**, with natural fluctuations of **anxiety** and **engagement** during the taught modules, and **satisfaction/frustration** as progress was made, barriers encountered and milestones passed. Course materials and learning processes in the modules provoked, at various times, feelings of curiosity, excitement, **fun/humour**, **shame**, **isolation**, **regret/sadness** and **frustration** leading on to partial **disengagement** in the dissertation phase, then **pride/relief** at the final disengagement from the course. Some students experienced particular life events which impacted on this journey. It was noticeable that for those students who were comfortable with their own sense of being-in-the-world/online, and who managed to attain secure attachments to the learning community, they were well satisfied with their learning, and in some cases found it deep or transformative. Other students struggled with **connecting** with others online, and found that disembodiment was a barrier to development of community, and of the close personal relationships necessary for the kind of trust required for self-disclosure. The technological aspects of the learner interface were generally conducive to **connection**, particularly the asynchronous discussion forums, but the chatrooms were not universally liked - they afforded a sense of spontaneity and connection through humour, but they also resulted in the majority of participants feeling rushed, confused or excluded. Interestingly, there were few reflections on emotional reactions to the technology itself, apart from occasional **frustration** when for example a chatroom was not functioning smoothly. Whilst the technological specification of the learning environment will have had an impact on the kinds of activities and interactions which students engaged in, and hence the relationships and emotional responses they experienced, this was not something which figured prominently in students' narratives, nor did it show up via the measures or linguistic analysis.

The lack of immediacy involved in much e-learning activity gave e-learners the opportunity to think before speaking, and this tended to dampen down emotional reactions, which would have been stronger if expressed instantly. It also meant that e-learners were able to communicate their narratives with less disruption, and this seemed particularly relevant to difficult topics or those with strong emotions (which had the potential to provoke emotional reaction in others); in these instances, students valued the space which online interaction afforded them in being able to compose, and complete, a narrative without being impacted by others' responses. Some emotions, such as happiness, seemed more amenable to transfer online, though it is not clear if this was due to compatibility between the emotion and the online medium, or simply because they were more acceptable, and therefore more likely

to be openly shared. It may also be that the experiencing of these emotions was more salient or memorable, due to the aforementioned sense of relief at having made a connection despite others feeling a long way away. Humour played a significant role for some participants, and this also seemed to translate well. There were occasions in synchronous chatrooms sessions where "banter" and "small talk" were perceived by some as distracting from the learning, and thus the humorous tone and pleasurable emotions experienced by some was in contrast to the frustration of others. In asynchronous learning, where shifts in emotion were felt by individuals reading posts, the shifts were not expressed instantaneously, and so were unavailable to others immediately; it was only through delayed action, by composing and posting a response to a posting, that the emotional tone of a response became evident. Learners report that often, during the intervening period where they were able to reflect on their emotional reaction and compose a response, the emotional tone was moderated. Where they may have felt a flash of anger upon first reading a posting, or a twinge of regret, this will often have been dampened down or even omitted, as far as the learner was aware, from their text-based response. Occasionally, the response will have had time to grow in intensity, as the permanence of text gives the opportunity to read and re-read another's ideas, whereas in synchronous co-present communication, the conversation can move on before there is time to reflect, and solidify a response. So we cannot conclude that the asynchronous nature of e-learning always involves a dilution or a concentration of the emotional tone of responses, just that the passage of time, and opportunity for reflection, may well involve a shift in emotional state.

The internet appears to afford certain ways of being-in-the-world/online with associated emotional flavours, some of which are conducive to transformative learning, such as the aforementioned self-disclosure facilitated by being online. There are implications for teaching and learning practice, which will be covered towards the end of this Discussion section. One of the most significant barriers for learners is the feeling of anxiety which was evoked by being online and not having the immediate feedback, via visual cues, that one's peers were essentially supportive and appreciative of one's efforts. Students typically reported experiencing high levels of anxiety at the start of their e-learning experience (it is notable that this was not picked up by either the outcome measures of linguistic analysis, both of which might have been expected to show a difference in anxiety levels from week 1 to week 10). This could be partly due to issues around orientation in the learning environment, and the unfamiliarity of online interactions. However, the qualitative component of this thesis suggests that students experienced anxiety in the early stages of the course primarily because they didn't know how they were being perceived by others, and this led them to question their own abilities and knowledge. Collaborative approaches to

learning helped to dampen this anxiety down by encouraging students to work together, to share ideas, and to take responsibility for one another's well-being, as well as their learning, rather than experiencing them in isolation. For the early weeks, course tutors can either try to minimize anxiety, or to harness it; both these approaches are likely to include the tutor facilitating a discussion about how students are faring, and feeling - this ought to be standard practice. Such a discussion would give students the opportunity to discuss their own feelings, to see these in the context of peers' feelings, and to come up with ways of working productively with the anxiety.

As well as the initial burst of anxiety associated with starting a new venture, students may go on to experience other kinds of anxiety. This is an emotion generally considered aversive, and a barrier to learning, but an alternative viewpoint, indeed one espoused by the existential thinkers who formed the basis for the "Existential and Human Issues" module, and thus the overriding inspiration for the course as a whole, is that anxiety is an inevitable aspect of human experience, and signifies an awareness of and engagement with some of the major personal, political and philosophical issues that we all face. Thus if an e-learner reports feelings of anxiety, this may signify that they are highly engaged with their studies, rather than that they are disengaged or blocked. The MSc in Psychotherapy Studies explicitly considered the role of anxiety, and so discussing their experience of anxiety, and other emotions, was an important element of the course. The pedagogical approach adopted by the course in Sheffield - collaborative learning - emerged as a very good way of harnessing the potential of e-learners, and this is borne out by evidence in the Background section of this thesis whereby those e-learners who were not provided with opportunities to engage collaboratively were both less active and less satisfied. Data suggest that for psychotherapy e-learning students, the more satisfied students were the ones who engaged in a type of learning which involved emotional transactions (and vice versa). A number of other ways of measuring students' emotional engagement were less successful, and it appears that for this group of students, neither the application of pre/post measures nor analysis of language used online were effective. This may be because the student numbers being considered were small, and with a larger amount of data, some of these methods might prove to be effective. But for the purpose of this thesis, it has been the qualitative interviews which have revealed the complexity and significance of e-learners' emotional engagement, and it is the students' narratives which have given the clearest indication of the roles that different emotions have played in their studies.

Although this study uses relatively small numbers of participants for the qualitative component, it suggests that there was considerable diversity in learners' experience of the course, and it appears that these individual factors, such as personal experience, degree of

comfort with online interactions and previous training, had a major impact on the extent to which they engaged with e-learning, and were able to both experience emotions in relation to it, and use them as material for transformative learning. Indeed, several students explicitly stated that they decided not to engage emotionally with peers on the course, lest it be a "distraction" from their studies, whilst others found the distance, and lack of visual feedback, to be problematic in forming the kinds of relationships with peers which would have allowed self-disclosure, and discussion of difficult experiences.

From the data analysed here, the early experiences of anxiety were a natural phase which all students experience upon embarking on a new venture, and the particular characteristics of e-learning added an element of uncertainty about e-learners' ability and self-confidence. Having got past that, further experiences of anxiety served to facilitate or hinder transformative learning, depending on the context. The positive emotions associated with engaging with content/process seemed to be conducive to e-learning, as was the sense of connectedness which is one of the more unexpected bonuses of e-learning for many. The existential challenge is something which may not be present in all e-learning contexts, although the nature of disembodied contact with others does contain paradoxes and challenges, whether e-learners choose to explore these or not. The fun/humour which e-learners experienced is equally possible in face-to-face interactions, and probably performs a similar function online. Emotional disclosure appeared to be greatly inhibited or facilitated, depending on whether the e-learner was comfortable engaging with others online or not. Shame online could be problematic, as there was the chance that it would not be picked up by tutors or peers, and its damaging effects therefore not addressed; there was also a permanence to online interactions, via the learning environment, which could prolong the shame and worsen its impact. The ability for shame not to be revealed online may, paradoxically, have lessened its impact. Isolation was a common experience for e-learners, and can be a difficult experience, and one that is likely to lead to disengagement. Regret/sadness did not seem to differ greatly from the online to offline context. Frustration/anger were common experiences, and the software/hardware could easily provoke these feelings when things did not run smoothly; anger can be problematic online, in that it can build up without others' awareness, before exploding in a surprising and damaging way. Satisfaction was an ever-present emotion (coupled with frustration) as activities and tasks were undertaken; pride was reserved for accomplishment of more visible milestones, although some students reported pride at even being accepted onto the course. In all these cases, it was the ability of the tutor(s) to work with students' emotional experiences in a supportive way, to create an environment which enables dialogue and self-

reflection, and to foster collaborative approaches to learning, which harnessed the potential of positive experiences, and turned damaging experiences into transformational ones.

5.1.4 Triangulation protocol

Given the three sets of findings, discussed previously, consideration must be given to the extent to which they provide triangulation, and how the findings relate to one another. The previous sections suggest that in fact, whilst the studies have made useful contributions to answering the research question individually, they do not offer a strong triangulation. This is in part because the methods being used in the first 2 studies were relatively speculative, and it wasn't clear a priori how the findings of one study might feed in to another, so they took place effectively in parallel, without informing one another. A more sophisticated approach would have been to enable the results of study 1 to influence the method of study 2, and so on, thus working towards the most effective method possible, with the best chance of valid and reliable results. It might have been possible to use study 1 to identify students who were experiencing low levels of well-being, then use the linguistic analysis to home in on the text from these students; finally, they could have been interviewed about their experience, although given the findings of study 1, it is very likely that this would not have provided sufficient participants, and would have necessitated a change in method at that point, e.g. lowering the threshold for a participant to be considered as experiencing low well-being, and hence being included in studies 2 and 3. As it turned out, the first 2 studies were only partially successful - the well-being measures and linguistic analysis did both pick up on changes in emotion being reported or expressed by e-learners, and there was a degree of corroboration, but more work is needed to refine the techniques for both gathering and analysing data, as will be discussed later. Study 3 provided better insight into the role of emotions, although the results of this were largely free-standing of the work that went before in studies 1 and 2.

5.2 Pedagogical issues

To consider how emotions impact upon the pedagogy of e-learning, we should firstly discuss the impact of the medium in which learning takes place. Due to the nature of online interactions, many of which take place without the visual feedback afforded by face-to-face interactions, the e-learner is more likely to experience emotions individually, or not to have immediate access to others' emotional responses except through text, and lack of text, with the end result that the emotional experience of other e-learners is harder to access. An individual's response may be shared with others in a group, or it may not; the e-learner may be aware of the extent of this sharing, or unaware; the e-learner may be attuned to the

group, and adept at picking up on the emotional states of others through text alone, or they may not. Learning, like all human activity, takes place within a backdrop of emotion, and the disembodiment wrought by the internet changes the way we can perceive the emotional tone of others' communication. Some emotions, particularly those with socially unacceptable sequelae, were experienced largely alone, by the individual, in response to learning activities on the course. If the student chose to disclose these, then they might have had an impact on others; if they chose not to disclose them, there is the possibility that such phenomena would nevertheless find their way into the language used by students, and be picked up by peers. This response would also be picked up by the linguistic analysis of chatroom and forum postings. But if, as seems to be often the case, the student dealt with such an issue themselves, there would be little or no "contagion" to others.

There may also be a certain concentration of emotion when, despite the isolating tendencies of the internet, students realise they have managed to nevertheless make an authentic connection with another; this might explain the strong attachments to the learning community which some students reported, which were a surprise to them. But regardless of whether emotions were experienced as a result of interaction with peers, engagement with theory or in response to overcoming the barriers imposed by e-learning, it does appear that emotions had less of a role in communicating internal states to others and were more focused towards communicating internally about meaning and values. This aspect of emotions – that they are activated by our values – suggests that if as learners, we are aware of and alert to our emotions, they have important messages that our values are being affirmed, challenged or transgressed. In an e-learning context, the changes imposed by the internet on our way-of-being-in-the-world may cause us to consider some of our interpersonal behaviours, and the values associated with them. Therefore in some respects, emotions become more important online, because physical co-presence is denied us, and we therefore have to be more proactive in monitoring and understanding our emotional reactions to others.

In the current research, the design of the learning environment was not commonly identified by students in this research as being a specific factor in their engagement, although they did credit factors such as the addictive feel of the discussion forums as being important. What may have been less apparent to students was the pedagogical approach adopted in each partner country's implementation which did appear to impact on engagement and the student experience. On the Sheffield course, an explicitly collaborative learning model was adopted, and this was apparent in the assessment criteria (table 3) which included elements such as "Have the student's posts made a useful contribution to the discussion, which demonstrates an engagement with others' posts and discussions on the topic?" It was also

clear, from comparisons with other implementations of the same course materials by partners with different learning models, that high or medium collaborative learning led to higher engagement and student satisfaction than the more didactic approach taken by one partner. There may have also been an effect from the types of students recruited by partners, as in the partnership with the most satisfied students, they were all mature psychotherapists, and the least satisfied were younger medical students. Nevertheless, it seems that given the isolating tendencies of online technology, an explicitly collaborative approach to learning was beneficial in helping learners make their experiences available to one another.

The disembodied aspects of online interaction, although now being tempered by greater use of video technologies, mean that instant visual feedback in communication may not be present, and e-learners differ in the extent to which this is problematic or liberating. Pedagogical approaches to learning can also enhance or detract from the experience, depending on learners' ability and willingness to engage collaboratively with others. In a programme where the goal is to engage with one's own emotional response to personal and theoretical issues, those who are able to engage in self-disclosure, and enter into a collaborative learning mode, are more likely to experience transformative learning; if the goal of learning is more task or process-oriented, then collaborative learning may still be a good approach to encourage learners to take on board the views of others, but the transformative aspects need not be emphasized to the same extent. Learners differ in terms of how they are able to use self-disclosure and collaborative learning, and this seems to hinge on whether learners are able to trust others online - some find this difficult without instant visual feedback or physical co-presence. There may also be psychological factors at work.

The qualitative interviews conducted in this research strongly suggest that major factors in the ability of students to engage emotionally were the extent to which they collaborated with one another, engaged in self-disclosure, and felt that they could trust their peers and tutors with personal information. This was particularly appropriate for a topic such as psychotherapy where the onus is on individuals to consider personal and emotional issues, and self-disclosure proved to be a very effective way of enabling students to access and share personal information which they could then (re-)examine in the light of theory. (The effect may be less where the exploration of emotions is not part of the learning objectives for the course.) There is research to suggest that repeated exposure to sensitive issues is valued by students in a F2F classroom, and the process of getting used to disclosing, and feeling a lessening in sensitivity, is an important element of students' emotional journey through higher education (Lowe, 2015), and there is support for this idea from the current research with e-learners. The current research did not evaluate non-psychotherapy e-

learning, so applicability to other subjects is unclear, but within the psychotherapy studies programme, certain topics seemed to provide more opportunities for self-disclosure and transformative learning than others, with modules on "existential and human issues" and "conflict" being most frequently cited by interviewees. Data from student interviews suggests that individuals experienced different modes within their experience, e.g. engaging in collaborative learning at times, then withdrawing and working more in isolation in response to personal or workload issues; also the transformative aspects of their experience varied in intensity from module to module, and this seemed to be a response to both peer relationships and the extent to which subject material aligned with core values and provided existential challenge. However, despite variations in pedagogical modes of engagement, the data from partners who differed in the extent of their collaborative approach suggests that for e-learning in psychotherapy, there is strong support for the use of a collaborative learning model, and that this is effective in enabling transformative learning.

The emotions which students experience as they progress through their e-learning experience can act as signals to tutors and fellow students of their engagement with learning, and they therefore point to ways in which learners' experiences can be shaped, through personalised learning, in the most effective ways. This research outlines common experiences, for e-learners in psychotherapy, and suggests some ways of personalising input through using automated, "real-time" methods, increasingly described as "learning analytics", to give timely feedback and allow early decisions to be made.

5.3 Individual and group mediating factors

What factors, in addition to or in combination with internal social-psychological ones, could have impacted upon student's emotional experience of e-learning? The constitution of the tutorial groups was mentioned by most respondents as being a salient factor in the extent to which those groups were reported to have been successful. As reported under "3.2.5.1 Sampling" in the earlier Research Design section on Study 2, groups were constituted in different ways by different partners, and not all partners used small tutorial groups with high staff:student ratios. In Sheffield, allocation was done by students giving availability for timeslots, then the module co-ordinator allocating students on that basis, and also on the basis of diversity and balance. A number of students interviewed indicated that it was the individuals in a particular group which made the module memorable, and which facilitated self-disclosure and deep learning; the tutor should also be included in this consideration as well as students. All the students registered were at postgraduate level (the youngest was

aged 23), and as such, they constituted a group of "mature learners" (often defined as 24 or over). The average ages and gender mix of students providing data are shown below:

Data collection method	Partners providing data	No of students providing data	Average age of student providing data	Female:male ratio in groups of students providing data
Outcome measures	Sheffield, NSPC, Leuven, Bordeaux	85	41	From 62:38 to 80:20
LIWC	Sheffield	22	41	73:27
Qualitative interviews	Sheffield	10	50	70:30

Table 32 - Demographics of students providing data

Numbers of participants providing data were too small to be able to conclude whether the differences in age and gender mix between these groups were significant, or what the impact was on the data collected. In terms of their background, many of these students were very experienced clinically, or looking for lifelong learning opportunities. Research looking at the extent of collaborative learning and the age of learners is sparse - in their survey, Paechter et al did not find that age was a factor in students' learning achievements of course satisfaction (Paechter, Maier, & Macher, 2010); nor did age emerge as a specific factor in Gilbert et al's evaluation of the e-learning student experience (Gilbert, Morton, & Rowley, 2007). Kahu et al found that "older and distance students were less likely to engage in active learning strategies with their fellow students" although they were better able to integrate learning with work experience (Kahu, Stephens, Leach, & Zepke, 2013, p.791). Regarding gender, and referring to earlier research by Curseu et al, it does seem likely that having groups with a majority of females was helpful in terms of engendering a culture where reflecting on emotional processes and group functioning was readily accepted.

The individual student's orientation to both online work and learning in general appeared to be significant. The low drop-out rates and high satisfaction levels, along with interview self-report, suggested that students enjoyed and benefitted from their e-learning experience; however, a minority of students found that they didn't take to e-learning as others did, and they felt unable to develop trusting relationships with others. Although these students progressed through the course, and were satisfied with the outcome, they were much less likely to engage in self-disclosure, and move in to transformative learning. The role that

learning was playing in a student's wider life and career was also relevant in that different emotions were provoked by different scenarios. So as mentioned, for lifelong learners, the emphasis was largely on learning that contributed to a general sense of meaning and well-being, with personal insights being highly valued; this meant that the more difficult emotions brought up were – for the most part – highly valued, and positive emotions were associated with negative emotion experiences. In addition, there was a more general emotional context of focused human activity, and the positive emotions associated with recognition of progress and achievement; all learning tasks has rewards associated with them, be that the small internal reward of noting that a week had been completed, or a piece of knowledge integrated, or something more substantial such as an assessment being submitted, or passed with feedback. The larger achievements were likely to stimulate feelings of pride, particularly if peers were also undertaking the same tasks, and the learning community could share experiences, and congratulations/commiserations.

Another notable factor in the experience of learners is the economic context, given the current era of "austerity" and increasing student fees. One student interviewed was particularly keen to maximise the value of her e-learning. She identified a fellow student as a "slacker" who was doing the bare minimum which made her wonder "how they were getting away with this". However, when asked if she felt resentful, she replied:

> Elizabeth: Not really, cos err I was just getting what I needed out of the course, so it was just-it was just something I noticed and thought "Well, you know"... I suppose that the- not resentful but I just sort of thought "I'm working very hard for this degree and I think umm, you know, it'd be a shame if people could just get through on the bare minimum and not really put all the effort in but ultimately I just thought, "I'm doing this for myself and I'm getting what I need out of it so..." and there were other- I think if everybody had been doing the bare minimum, it would have been, made a big difference, but because there were other like-minded people who were just getting everything they could, I mean I spent a lot of money on this so I wanted to get my money's worth so that was another reason I spent a lot of time on it-

Whilst this was just one aspect of her experience, it does point towards the way that an awareness of the financial commitment of educational experiences encourages a shift towards viewing education as a consumable product, with the learner as a customer who values the educational experience in monetary (as well as other) terms. Where the financial implications of pursuing an education are emphasized, and the cost to students is higher, the emotional experience is more likely to revolve around service and consumer rights, with approval /satisfaction and disappointment / dissatisfaction / resentment being more common. The emotional landscape thrown up by the impact of recent financial and political upheavals is not one that has acknowledged in e-learning research, but it does have an effect on student-tutor interactions, as well as how students view and engage in their learning more generally. Jones (2014) concludes that:

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"networked learning needs to pay greater attention to formal or 'high' politics if it is to maintain its position in higher education. Communication, collaboration and dialogic methods of education are not exclusive to public education and they can be found in business schools and practiced by private consultancies. However across the full higher education sector the role of public money and the unique place of the university as a protected island of academic freedom is essential for the development of an environment in which networked learning can flourish".

(Jones, 2014, p.175)

5.4 Personalised learning

There does appear to be a fundamental division in the learner journeys which students reported, and it is one which would typically become apparent after the first couple of weeks of study. As suggested in section 5.1.3, all students reported initial feelings of anxiety associated with a new undertaking, one that was often unfamiliar, and may have been the first experience of e-learning; this entirely understandable anxiety was augmented by a particular anxiety around the lack of visual feedback, and concerns that their contributions were insufficient, or unvalued - without the reassuring physical presence of others, and the continual feedback that one receives in face-to-face interaction, students were very uncertain as to what others thought about them. For some students, these feelings dissipated as they began to realise that others felt the same kinds of anxiety, and that their own knowledge and experience was valid and interesting to their peers. And for a few of these students, their learning took off in ways that surprised them - they found that they very quickly engaged with and trusted their fellow students, to the extent that they felt able to disclose personal information, and start deep or transformative learning. Some of these students reported hitherto a tendency to be quiet in groups, more so than they would wish, and that online study seemed to free them from this, a finding which accords with research to suggest that "the absence of visual and auditory cues online reduces shy individuals' experience of detecting negative or inhibitory feedback cues from others" (Stritzke, Nguyen, & Durkin, 2004). But for other students, the absence of the information imparted by "the look" of the other meant that they remained in a mode of uncertainty, where they were not able to develop the kind of trust that is necessary to connect with others, and feel comfortable discussing personal issues. So there was a fork in the road, in terms of learner journeys, in e-learners' first module. It would be valuable to be able to identify, even before studies commence, which way a student was likely to go. If this could not be confirmed before the start of their learning, then some of the techniques for tracking emotions could be used to monitor anxiety and engagement levels. The mental health and well-being measures, as applied in this research, were not specific enough to pick up on exactly what type of anxiety a student was experiencing, and whether that meant they were unlikely to be able to

connect with others online; and for students to regularly repeat measures would become onerous and a distraction from the learning itself. So some kind of continual assessment is needed, and there is a parallel here in the way that psychotherapy research is changing, with continual assessment being made possible by technological developments:

> "In line with the move from the traditional Internet to the mobile phone, the development of Ecological Momentary Assessment (EMA; Kaplan and Stone, 2013) will become an interesting new tool for research on mental disorders in general. In EMA information from the sensors in the mobile phone (accelerometer, GPS, audio, contact with other phones) can be combined with personal information from the user (where are you, what are you doing, how is your mood, how did you sleep). This will allow examination of mental health problems in real time, and a move away from retrospective information about mental health towards actual assessment during day-to-day life".
>
> (Emmelkamp et al., 2014, p.81)

An EMA approach to e-learning research, using a tool such as linguistic analysis to pick up on terms associated with anxiety, could serve as an "early warning" system to warn tutors that a student was experiencing early anxiety. (It is unlikely that anxiety in the first couple of weeks is purely "existential" but contains an element of uncertainty around procedural and engagement issues.) If, by whatever means, it was possible to identify that a student was likely to stay in this mode of not feeling comfortable being with others online, additional tutorial support could be made available for the student to discuss this issue specifically, and find ways to help them connect. For example, learning could be augmented with more telephone or video contact, something which a number of participants of this research had suggested. In extreme cases, a student who struggled to connect with others online could be advised to reconsider their decision to enrol in an e-learning program. Another issue which appears to divide students is the synchronicity of learning - for the majority of students, the asynchronous discussion forums, because they allowed for reflection, were better at enabling this kind of more intimate exchange on the whole, whereas the synchronous chatrooms functioned more as a kind of social glue which allowed the learning community to bond over less personal issues. There was one participant who much preferred the chatrooms because she valued the spontaneity and humour that they enabled, and here too, it might be possible to offer students a different menu of ways of engaging. Whilst many would choose a blended diet of synchronous and asynchronous, there are some who, given the choice, would opt to learn exclusively via one or other method.

So it could be that with appropriate ways of finding out learner preferences, learners could select from a menu of options and end up with a course in a number of different flavours. It is worth noting that even those participants who, from interview, could not easily connect with others online, and preferred face-to-face contact, reported being satisfied with the

course, and happy that they had chosen it. Those students who were able to develop trusting relationships, and to use self-disclosure appropriately, reported that they found this extremely valuable, and said that they gained more from this type of learning than from other approaches. The possibility of making learning "personalised" brings considerations of equity and could lead to accusations of preferential treatment, or that one particular way of interacting was easier than others in terms of learning, and therefore likely to produce different results by assessment. So any personalised approach would need to be carefully planned, and it is likely that assessment methods would need to be the same across a cohort to maintain standards and fairness. But a personalised approach does open the way to higher levels of student engagement, retention, performance and satisfaction.

For those students who were not comfortable discussing emotional issues online, learning on this programme seemed rather less satisfying, perhaps because it was geared around valuing discussion of emotional issues, although the interactivity with peers/tutors and access to resources was still thought to be valuable, as were the many benefits bestowed by e-learning such as ability to fit studying around work/family commitments. Clearly, in this context, the role of emotions was not only as a gateway or barrier to learning, it formed the very substance of learning itself, and that may not be the case in every course. So the issue of how transferrable this research is to other courses and topics needs to be addressed. There were some specific aspects of the course which meant that the role of emotions was highlighted - although this wasn't picked up in the interviews, those who didn't engage emotionally may have perceived that they were missing out on some of the experience, or that this was somehow a shortcoming of theirs. Where students were receiving positive reinforcement for self-disclosing emotional experiences, there will have been a certain pressure to conform, to respond to a disclosure with one of their own, both in order to contribute to the dialogue, but also to fit in with the group and receive positive reinforcement. Students may have felt coerced into engaging emotionally when they would have preferred to focus on more cognitive learning objectives. This kind of pressure would likely not exist on a course where there was not such high value placed on emotional work.

However, it is inevitable that whatever, the topic, e-learners will encounter emotional dynamics, in their own reactions to peers, tutors, course materials, personal histories, IT infrastructure, hardware or software. The course that ignores these - be it online or face-to-face, does so at its peril, and there are a number of well-known issues with online interaction which can easily become barriers to learning, e.g. bullying, trolling, flaming, inappropriate disclosure, etc. These were thankfully rare on the course under consideration here. Inter- and inter-personal conflict did occur, but was not necessarily a barrier to learning. Indeed, sometimes the conflict was central to the learning experience, and several

students were able to reflect on their own and others' conflict in ways they found productive. This was – naturally - particularly the case in the "Conflict" module, where students' own conflict processes became the subject of study.

5.5 Learning analytics

The use of "big data" is part of what is known as the "quantified self", namely "the phenomenon of consumers being able to closely track data that is relevant to their daily activities through the use of technology" (Johnson et al., 2014, p.44). The application of "quantified self" to education is known as "Learning Analytics", whereby data about learner and teacher activities can be analysed, in order to identify patterns of behaviour and provide actionable information to improve learning and learning-related activities (Harmelen & Workman, 2012). An example of this is the "Course Signals" system developed at Purdue University which uses data from multiple sources (including grades, demographics, academic history and current effort) to predict students who are at risk of failing their course (Arnold & Pistilli, 2012). Students receive a personalized email, along with a "traffic light" indication of their progress, and crucially, this "early warning" system also alerts tutors to the need to develop an intervention. By adopting approaches such as this, there are great expectations that the use of learning analytics will "provide educational institutions with opportunities to monitor, support and engage learners' attitudes (e.g., emotions, motivation, engagement), behaviour (e.g., contributions to discussion forums, clicks, likes) and cognition" (Rienties & Rivers, 2014). However, these authors highlight the challenges to be faced in attempting to measure emotions for learning analytics, including the influence of researchers' assumptions about emotions, the different theoretical views on the nature of emotions, and the difficulty of deciding at which level to evaluate them. It is uncertain how learning analytics and the quantified self will impact upon education – the 2014 Horizon report suggested that the Time-to-Adoption Horizon for Quantified Self was 4-5 years, and stated, "Educators at the moment can only hypothesize about a new era of the academic quantified self, but interest is strong and growing" (Johnson et al., 2014, p.45). There may be a role for learning analytics in moving assessment methods from summative towards formative approaches, although to achieve this, educators will need to be able to visualize personalized data for students in ways that are easy to understand and have beneficial effects on learning (Ferguson, 2012). There are also privacy and security concerns which will need to be addressed, given the vast amounts of personal data which could be vulnerable to hackers and thereafter available for unauthorized and unforeseen uses, including financial gain. There may also be some philosophical reservations - is the quantification of the self a reduction, and one which makes the self more open to

commercial interests and more amenable to being monetized? Is this a step away from education for the sake of self-development, emancipation and transformation? There are concerns that these technologies might promote "techno-utopian, enhancement and healthist discourses, and the privileging of the visual and metric in representing the body via these devices" (Lupton, 2013, p.393).

Although not fully implemented in this programme, the current research points to the possibility of using an "emotional learning analytics" approach to enhance students' experience of emotions during their learning. Learning analytic data could be made available to e-learning students and tutors on their own levels of engagement, collaborative activity and emotional state during learning; this could be extended to include the engagement, collaborative activity and emotions of others, if that was conducive to the cohesion of the learning community and the achievement of learning outcomes. So for example, students could be given feedback on their emotional trajectories during the course of a week's learning on a given topic, and invited to discuss them with others. As well as signalling those students who are struggling to engage with their study, such a system could be configured to flag up students who are likely to be experiencing a mental health problem; early detection of this group of students would be very valuable, enabling tutors to provide early support, and if needs be refer the student for psychological assistance.

E-learning is, of course, a developing field, and new technologies bring new possibilities, and challenges. For example, a range of other tools could in time be used to measure, understand and feed back information on learners' emotions, and these include intelligent tutoring systems and emotion detection via facial gesture, voice expression or other physiological measures; successful implementation of these technologies would bring the possibility of monitoring and feeding this information back to learners in real-time (Rienties & Rivers, 2014). And the scale of e-learning has undergone some recent changes with the development of MOOCs, which I have been involved in as a learner and a developer (ScHARR, 2013). The implications of these new ways of delivering and engaging in online learning for learners' emotions have begun to be addressed, e.g. given the high attrition rates in MOOCs, Cheng notes the impact of non-achievement emotions which are not directly linked to achievement activities or outcomes (Cheng, 2014). Different models of MOOC instruction are likely to engender different emotional flavours to learning.

But before we embrace a technological solution, we should pause to consider whether there really is a problem, and whether a technologically driven solution is really required - this "solutionism" is criticised by Morozov (2013), amongst others. We might reasonably conclude that maximising the student experience is an important responsibility of educators, and given the increase on e-learning, which looks set to continue, finding ways of providing

emotionally engaging learning is well worth pursuing. That is not to say that the solutions need to be technologically focused, and there are also dangers of technological determinism whereby "research on the educational uses of technology frequently overemphasizes the influence of technology" (Oliver, 2011, p.373). We should be cognisant of the skills and experiences of the learners and the learned; it is the learners who are the experts in their own experience, and the perceptions and judgements of students and tutors remain of paramount importance. The added value of a learning analytic approach would be in augmenting information already available to learners and teachers or in capturing information not available to them, and enabling reflection on this.

5.6 Engagement, retention and dropout

Research looking at student characteristics and drop-out rates suggests that the best predictors of drop-out are attendance at an orientation session, and the student's grade point average (Wojciechowski & Palmer, 2005). So preparing students appropriately for their e-learning is very important, and doing so in a way which provides information on the emotional aspects of being an e-learner on a particular course, and manages emotions around online learning, is likely to be even more useful. The emotions encompassed by feelings of satisfaction are likely to influence a student's decision to continue with a course, or drop out (Chiu, Hsu, Sun, Lin, & Sun, 2005; Levy, 2007; Paechter et al., 2010). So enabling students to feel satisfied, at an early stage, is likely to encourage continued study, whilst also increasing the chances of engagement and collaboration.

The e-learning programmes which provided the data for this research reported varying levels of engagement, but good overall student retention and low dropout. This was likely to be influenced by the kind of people enrolling on the courses and their motivations and reasons for doing so - lifelong learners pursuing personal development, practicing clinicians pursuing both personal development and a qualification for CPD purposes, or medical students. Whether a student was self-funded or funded by an organisation might also impact on the kind of engagement that students were involved in, and the levels of educational achievement, satisfaction and completion. Engagement varied from partner to partner, and given that the course materials remained the same, it is likely that pedagogical model and cultural factors were important. This again points towards the importance of a collaborative approach which can mediate against the isolating tendencies of online study. Opportunities for self-regulated and collaborative learning is cited as one of the variables contributing to learning achievements or satisfaction, along with students' motivation and the clarity of the course structure (Paechter et al., 2010).

In terms of students' personal preferences for engaging in online interactions, there does seem to be a division amongst students between those who feel fundamentally at ease with e-learning and those who don't. Whilst student satisfaction data was consistently high, and a majority of students interviewed reported that they were highly engaged with their learning, there was a small number who reported that they didn't really enjoy the online experience, and would have preferred face-to-face contact, either in addition to online elements, or instead of them. Broadly speaking, this difference became apparent relatively soon on a student's time on the programme. All students reported a period of initial anxiety while they oriented themselves in the learning environment, became accustomed with ways of interacting, achieved clarity on what the expectations were to make progress in their studies, and started to develop relationships with peers, tutors and course staff. Notably, students reported anxiety during this early phase which was centred around their perceptions of what other people thought of them; without visual feedback, and relying purely on text, many learners were anxious that they were somehow "getting it wrong", and that everyone else knew what they are doing. This period typically lasted between 2 and 4 weeks. Towards the end of this period, most students started to realise that everyone was in the same boat, that others didn't necessarily know more than them. They realised what was expected of them, and started to get into the flow of learning from week to week, meeting requirements, taking on board new information. They also, as appropriate, disclosed personal information, and responded appropriately to others' disclosures, in a way which strengthened relationships and paved the way for transformative learning to take place. However, the minority of students remained in a more distant state, and were never able to form the kinds of relationships they would have liked; they didn't trust their peers enough to disclose personal information, and so never went into deep or transformative learning. It should be noted that these people may have a general disposition not to disclose personal information to others, and whether or not they are online may have no bearing on this disposition.

Despite oft-heard claims that the revolution in education is "just around the corner" (Jones, 2015, p.3), the experience of being an e-learner is no panacea, and there were times for all students involved in this research where the distance asserted itself. This seemed to be most evident at the start of the course, and towards the end of the taught component when students were making the transition from the highly structured modules, with weekly materials, discussions and chatroom sessions, to the dissertation phase where they would be largely working on their own, with the guidance of an academic supervisor. A number of students reported dissatisfaction with supervisory arrangements, and this is likely to be in part a reflection of this shift from very connected work to a more solitary experience, with only occasional tutor and peer contact. There may have also been issues with tutor or

student engagement, clarity of expectations around support levels, etc. It is likely that building in greater opportunity for interaction with peers and tutors during this phase would be beneficial, and would reduce the feelings of isolation commonly reported. Also, as with any supervisory arrangement, clarity of expectations on both sides is vital.

A reflexive analysis of the data highlighted ways in which the interviewer and participants in the research were affected by their pre-existing relationships, and hinted at some of the dynamics which were less easily accessed in the transcripts, or apparent from other methods used - for example, Elizabeth's uncertainty about the value of e-learning was not something that was captured by the outcome measures used, nor was it apparent from the linguistic analysis. Even if an EMA approach to linguistic analysis had been adopted, it is not clear whether this uncertainty could have been intuited from her language on the course, partly because - as she admits - some of her views would not have been made explicit for fear of upsetting others, and it was only the face-to-face interview scenario which brought them to light. It would be useful to attempt a retrospective validation of the linguistic analysis method by querying some of the data in relation to issues identified by the qualitative interviews and reflexive analysis. Would LIWC have picked up on any of the uncertainty expressed by Elizabeth? Could her negative feelings towards e-learning, or the contribution of her fellow students, been detected in the language she used in discussion forum and chatroom discussions?

5.7 The role of the tutor

The role of the tutor has been considered during the analysis of qualitative interviews, but it is worth pulling out the issues into a shorter summary. A number of students interviewed did refer to the role of the tutor, and reflect on its importance. For example, the tutor's input was important in welcoming students to the learning community, containing their anxiety, providing reassuring feedback that contributions were appropriate and highly valued, and helping them to connect with others (p.152). Tutors needed to "come across well online", be knowledgeable in the subject area in academic and emotional terms (p.109, 147), understand the quirks and pitfalls of e-learning (p.143) and be available for contact (p.113). Tutors also had an important role in facilitating discussions and keeping the tutorial group active and on-task, whilst being aware of the need to step back and not be overly directive of the discussions taking place (p.107, 174); in addition, they needed to be inclusive (p.168) and understand and be able to work with the dynamics of online groups (p.107). Tutors needed to provide appropriate feedback on assessments and submissions (p.145), and provide practical guidance and emotional support where personal issues impacted upon

progression on the course (p.152) or where a sense of safety was needed (p.152). They also needed to demonstrate to students that they belonged to the learning community (p.149), and to reassure those who felt they might not have fitted in or had something important to say (p.153). There was discussion by some students of whether the tutor might have intervened more, where a student was experiencing difficulties (p.109) or needed more guidance on personal development matters (p.156). There was also discussion of students' perceptions of what was required, and the tutor's role in clarifying these, both in terms of essays (p.160) and in dissertation supervision (p.171).

The role of the tutors' own emotions has not been considered in depth, as this research has focused on the e-learners' experience, and data were not gathered for this thesis from tutors about their emotional processes. But clearly there is the potential for one to impact upon the other, and perhaps where these concerns coincide pedagogically is in the role that teaching staff play in facilitating students' emotions. From the feedback above, it appears that the tutor's ability to judge the length, frequency, content and emotional tone of their interventions is key, and these judgements will have been made in response to tutors' perceptions of individual and group learning processes as they related to learning objectives, and of the "emotional temperature" of the group. This is a return to the idea of affordances, and the kinds of interactions which tutors made possible, through course content, learning environment design, learning tasks and style of facilitation, as well as aforementioned characteristics of tutor input. This course embodied much of the approach to education and therapeutic work of those who created it (myself included); it also gained some of its flavour from the choice of learning environment (initially webpages created in Dreamweaver with custom graphics, and PHPBB2 forum/chatrooms), and the people who created that. For example, the course was presented as a series of "islands" (or modules) which students visited, and each module had 10 locations (weeks of study) which students worked their way through. Each week was given a name, e.g. the first three weeks of the "Existential & Human Issues" course were called "Paradox Plantation", "Anxiety Bay" and "Sexuality Volcano", and pages had custom graphics of these locations designed to aid navigation, add visual interest and play into the idea of exploring an area of thought. The discussion forums, being supported by PHPBB2 and therefore less amenable to customisation, had a more generic feel, with different colour schemes and font, and no custom graphics, so the flavour was likely to be more neutral and – although this was never explored with students – less engaging as a result. Thus the course architecture, which served as the vehicle for and backdrop to the learning, brought with it its own array of emotional affordances, and so too did the tutors, whose "way-of-being" in the online space was crucial in setting boundaries for interpersonal behaviour and providing the emotional tone of interactions. These differences

were keenly felt by students, and reported by several of them in the qualitative interviews. Williams (2015) examines the similarities between the therapeutic relationship developed in mental health work and the relationships that tutors develop with students to promote learning environments; one of the core elements of therapeutic relationships which is particularly important in this work is the therapeutic use of the self (Williams, 2015). There is also research looking at the teachers' emotions in higher education settings, and Hagenauer & Volet (2014) identified three major themes related to the emergence of emotions in HE teaching (not necessarily online) - the importance of the intrinsic value of teaching, the extent to which expectations of students' engagement were met; and an awareness of how much control teachers have over the professional practice of teaching.

The tutor's active involvement in the shared work of the learning community was an important consideration. McConnell commented on the place of the tutor in such a community, saying:

> "The tutor exists between the boundary of the institution, which s/he represents, and that of the learning community. In the learning community the tutor adopts the 'role' of tutor-participant. This implies a sharing of power with the course participants. The tutor has to work at ensuring that power is transferred to participants in the community, who in turn have to come to trust the tutor in that process… Tutors and participants relate in highly personal ways, and this relationship shapes a great deal of the learning on this course (McConnell, 2000)."

(McConnell, 2002, p.76)

For the tutors' part, it emerged from discussions that the kind of online presence that tutors developed (or projected) felt like an important aspect of teaching. One tutor labelled this, in an interview given jointly with myself at a UKCP conference on "Psychotherapy 2.0", as "intersubjective imagining" (Tantam, personal communication, 2014), a process whereby the tutor has a feeling at any given time of how the group is functioning, and how individuals are faring. To engage in this process, a tutor does need to visit the online area regularly in order to learn about students' patterns of interaction, and be able to pick up on small changes in this which might belie more significant issues; without this kind of attunement, students' emotions may be missed, and signs of disengagement not picked up. Inevitably, given the lack of visual contact, tutors do rely to a large extent on what students choose to reveal, and they need to spend more time than on a face-to-face course checking out their concerns with students who they feel may be having problems.

Students also struggled at times with emotions associated with personal issues raised during their studies, and it then depended on the networks they had built up with peers and tutors, as well as their existing support networks, as to how supported they felt in dealing with these issues. The course content and associated discussions were challenging in

places, and students were sometimes disturbed by course materials, or by issues in their personal lives which were brought up during their learning. For some, this worked well, whereas others were left feeling that they were dealing with difficult emotions in isolation. This is where the role of the tutor becomes particularly important - in not only setting up the conditions whereby the learning community can thrive and develop its capacity to support individual members, but in being able to pick up on the early signs that a student is struggling with an issue, and on having the expertise to respond appropriately to that individual, and the community as a whole.

5.8 Facilitation and tutor training

Tutors, module leads and programme directors have a crucial role in structuring the experience of e-learners, and the role of emotions needs to be considered when making decisions on issues such as the choice of learning platform, the blend of synchronous and asynchronous activity (e.g. discussion forums, chatrooms, wikis, blogs) and the kinds of activities which students are asked to do in order to achieve appropriate learning outcomes. Underpinning these considerations is the pedagogical model which teaching staff will adopt, and the chosen model will fundamentally affect the way that tutors and students interact, and the kind of learning which students undertake online.

Tutor training is required in how to work with the chosen pedagogical model, and how to implement this in an e-learning context. For those wishing to work therapeutically online, the BACP has guidelines for online counselling and psychotherapy which strongly recommend that further training should be undertaken (Anthony, 2009); a similar approach should be adopted for those wishing to tutor online. In a book chapter entitled "Thinking about training fit for the digital era", me and the lead partner of the SEPTIMUS, DEEP and CEP projects present the e-learning programmes discussed in this thesis, and describe how tutors were trained to teach online (Blackmore & Tantam, 2014b); this consolidated the earlier experience about the role of the eTutor (Blackmore, Tantam, & van Deurzen, 2006). In practice, it was found that using a shadowing approach was the best way of inducting new online tutors so they could experience for themselves some of the issues which e-learning brings whilst gaining confidence in how to interact online for the benefit of the learning community.

Research from the CEP project found that this transfer of tutorial skills was the most important component when translating an e-learning programme from one partner to another. So not only do new tutors need to be familiar with the learning environment, the learning outcomes, the structure of the course and the requirements on students and tutors,

they need to develop the skills to work with students online, taking into account some of the factors identified in this research such as the likelihood of self-disclosure and its potential impact, the tendency of some students to struggle with developing trust online, and the possibility of conflict erupting without warning. Tutors need to be familiar with the most common emotional experiences of e-learners, and prepared to respond in ways most likely to facilitate continued student engagement and achievement of the desired learning outcomes. In internal staff development days in ScHARR, I have summarized some of this learning about "How to teach online" in "seven golden rules":

> #1 - Break the ice - start the dialogue in a safe, open way

> #2 - Keep the learning in the group - encourage students to post questions and ideas to a shared space, for the group to answer collaboratively

> #3 - Model the kind of interactions you want to see - set appropriate boundaries for the group

> #4 - "Little and often" seems to work best - keep a daily (if possible) eye on the community so you can develop a sense of how the group is functioning and spot warning signs of any problems

> #5 - Remember what being online does to otherwise normal people - consider disinhibition, self-disclosure, conflict (including flaming and trolling), cyber-bullying

> #6 - Be a facilitator, not an expert - hierarchies may be flattened online but this can be used productively

> #7 - Silence may not be golden - it can mean a number of things and it is good practice to check out its meaning with a student

> (Blackmore, Miller, & Smith, 2015)

In discussion with Prof Tantam, an 8th rule is proposed:

> #8 - Be aware of the potential for misunderstandings - online text can easily be misinterpreted, especially when an e-learner is not using their first language.

5.9 Effectiveness of methods for measuring emotions

Of the methods used to measure online emotions that were examined in this thesis:

> Study 1 - Quantitative analysis of student data from a set of mental health/well-being measures

> Study 2 - Quantitative analysis of student data with a linguistic analysis tool

> Study 3 - Qualitative analysis of student interviews

each approach has strengths and weaknesses, and different possibilities for implementation. The quantitative measures from study 1, as used at the start and end of a module, were too blunt a tool to be able to give useful information on the impact of emotions on e-learning, and vice versa. They were useful in flagging up learners who were struggling with mental

health/well-being issues, although they didn't provide details of the extent to which these issues related to their learning. The measures would be more useful if they could be administered more frequently, but there is then a problem with the burden placed on learners who may not want to complete measures frequently. The measures considered here rely on self-report, and were designed for measuring longitudinal change rather than from moment-to-moment, so they don't lend themselves easily to a learning analytics approach. In this analysis, the measures gave a limited number of significant results, and due to the burden on learners being asked to complete them, would not be suitable for the kind of constant monitoring called for in order to personalise learning.

The linguistic analysis was partially successful in examining the role of emotions in e-learning in that it did pick up changes in language for individual students who were struggling with their learning, but given relatively small numbers of participants in this study, and difficulties in obtaining a full data set, it wasn't possible to consider the outcome measures of those students, or to find out more from them from student interviews. For the same reasons, it was not possible to show many statistically significant relations between language used and other measures, including those from study 1. However, in contrast to self-report measures, the linguistic analysis could be automated to provide continual feedback on the emotional content of language being used by learners online. This doesn't capture the whole of a learner's experience, of course, and relies only on those online communications which the learner engages in. But given that this is all that learners' peers know about them, unless there is video or telephone contact, it could prove very useful. For audio/video, the technology around voice recognition is not yet at a stage where automated linguistic analysis can be undertaken; nor is emotion recognition via expression or tone of voice sufficiently well advanced at this point in time. But with the advent of truly accessible, wearable technology, this could be about to change, and we may soon encounter digital tools which can accurately detect, monitor and even regulate our emotional health and well-being.

Finally, the interviews have enabled students to reflect on their experience of emotions, albeit relying on recall of events some time previously. They have given a detailed insight into the emotional experience of e-learners, and the role that emotions played for them. This approach is obviously not capturing learners' real-time experience, and due to its time-intensive nature, and inability to provide rapid feedback at an early stage of a learners' experience, there is no scope for a learning analytics approach. But it has allowed e-learners to provide a narrative of their learner journey as it related to emotions, which in turn has informed the consideration of engagement and personalisation. So the interviews have been a vital ingredient in discovering more about the role of emotions for psychotherapy e-

learners, as well as suggesting ways in which their learning could be enhanced, and the learning experience improved. It would be possible to provide students with learning analytics, and then interview them to find out their response to the data. Not only would this open up the dialogue around emotional experience, it would provide learners with the opportunity to agree with or question the findings, validity and acceptability of the learning analytic approach.

As implemented in this research, it is the interviews which have yielded the best insights into the role of emotions. The relatively small data set meant it was not possible to triangulate in terms of looking at results on all methods for individuals, and drawing conclusions from those. The most useful analytic data would not only provide feedback to the student on how they were engaging with their learning, and how they were progressing against learning objectives, it would enable educators to personalise this learning to maximise opportunities for engagement. The personalisation could be used to steer learning into a particular pedagogical model, for example learners could be given feedback on the extent of collaborative activity, and advice on how to achieve the maximal level of collaborative learning; or they could receive feedback on the "depth" of their learning, with guidance on how to steer this, through selective self-disclosure, towards transformative learning.

There is good evidence to say that in clinical psychotherapy work where repeated measures are used, providing feedback on progress of therapy to patients improves outcomes of that therapy (Probst et al., 2013; Simon et al., 2013). The same is true of education, in that if students are provided with feedback on their progress, this improves educational outcomes. For example, there is evidence that face-to-face quizzes improve student performance in clinical exams (Brar, Laube, & Bett, 2007) and that formative online quizzes enhance scores on summative exams (Dobson, 2008; Marden, Ulman, Wilson, & Velan, 2013). There is growing evidence that a learning analytics approach can provide this kind of useful formative feedback (Tempelaar, Heck, Cuypers, van der Kooij, & van de Vrie, 2013) and also has a role to play in deeper engagements with learning, as involved in the programme being studied for this thesis, which Shum & Crick call "learning power" (Buckingham Shum & Deakin Crick, 2012).

6 CONCLUSION

6.1 Summary and conclusions

This thesis has explored, through a literature review and three studies utilising different methods, the research questions "What is the role of emotions in e-learning in psychotherapy?" and "Which methods are most appropriate for examining the role of emotions in e-learning in psychotherapy?"

With regards to the first question, the literature review suggests that one of the major difficulties facing the field is a lack of agreement about what emotions are and therefore how their role in e-learning can best be studied; however, there is now agreement on their central importance to learning processes, and a general move away from seeing emotion and cognition as separate, competing processes. Given the rapid rise in internet use, there is a growing sense that e-learning research needs to consider how the internet changes the experience of emotions for students, and thus impacts on learning.

The background and thesis studies provide support for the idea that collaborative approaches to e-learning are associated with higher levels of engagement and satisfaction. The three studies examining different ways of measuring emotion had varying levels of success in doing so (see below), but from the third study, the presence of strong emotions within e-learning suggests that some of the learners' values are being called into question or reinforced, and with its intense mix of tendencies towards isolation and opportunities for connection, e-learning has the potential to facilitate an emotionally rich and diverse learning experience. E-learners reported many similarities in their progress, leading to the characterisation of "learner journeys". One group of students found that they were able to connect and develop trust with others online, and this typically saw them making the transition from high to low anxiety within the first 2 or 3 weeks as they became comfortable with being online and relating to one another; for this group, being online with others appeared to afford opportunities for the kind of self-disclosure which learners on this MSc found transformative, and they reported that their learning was enjoyable, satisfying and – in some respects - preferable to face-to-face learning. However, another group struggled to develop trust with others online, or deliberately chose not to do so in order to concentrate on what they perceived as the more intellectual (and less emotional) aspects of their learning; for these students, emotions played a less important role in their e-learning, and they were less likely to find their learning transformative, or to be as satisfied with it.

This research has enabled students to describe these processes in depth, whilst also testing different ways of picking up on these changes in emotions. In this regard, the three studies

highlight the difficulty of reliably measuring emotions, and point to the possibility that passive data capture and analysis - along the lines of a learning analytic approach – could avoid some of the known issues with measures, such as the burden on students of filling in repeated questionnaires, and the costs involved in interviewing students retrospectively about their experiences. A more immediate feedback system could give students and tutors valuable information on their emotional processes, and enable educators to enhance the student experience on a more responsive basis.

In conclusion, it is not possible to conclude that one particular emotion plays one particular role in e-learning. But emotions played a pivotal role in e-learning, being both the vehicle by which students made meaningful connections with the course materials, with psychotherapy theory and with one another, and the end result of these connections. The e-learning context seems very well equipped to give students the opportunity to consider and discuss emotions, particularly where these may be difficult; those involved in creating online courses and teaching them need to be aware of the impact of being online on emotional experience, and training in this should be provided. And finally, the qualitative interviews appeared to be an effective tool in allowing e-learners to document and reflect on their emotional experience, and the role that emotions played in their e-learning; the well-being measures and linguistic analysis were interesting approaches, but inconclusive in this research in terms of clarifying the role of emotions in e-learning.

As I reach journey's end and reflect on this thesis, which describes almost my entire time working in higher education to date, I am left with a mixture of emotions - pride, relief, anxiety, regret, and so it goes on. The work undertaken and the knowledge gained serves to ask new questions. Can I answer them? One can look forward to ask what the application of the knowledge may be, and whether changes in educational practice, pedagogical theory and technological capabilities will make insights from this thesis redundant. I think not, because looking back, this has been an inquiry into how we humans use the tools we find in the world around us to find a track to knowledge, alone and in groups, and an examination of how we feel about these activities. We are compelled to make meaning with whoever and whatever comes to hand. This is a timeless endeavour, as we encounter new environments in which to learn.

6.2 Contributions to the field

The main contribution of this work to the field of online learning is an attempt to investigate the best way of understanding emotions in online learning in psychotherapy, and a description of the role of these emotions. The best insights were provided by qualitative

interviews although the linguistic analysis of student data has shown some potential as a way of providing students with regular and timely feedback on their engagement with the course. Pre- and post-module outcome measures were not sensitive enough to pick up the kind of continual change which students were experiencing throughout their modules. The other main contribution is the confirmation of the central importance of emotions in e-learners' experience, and this has been characterised by thinking about learners' "ways-of-being-in-the-world/online". Being online with others changes the emotional dynamics, with some online learners feeling empowered to make closer connections than they otherwise would, and others feeling distanced and unable to trust others enough to connect as they would like. Description of online learners' emotional journeys has contributed to the notion that there are some common experiences which teachers and trainers should be aware of and prepared to respond appropriately to. The possibility of applying this learning to the growing area of learning analytics would open up the possibility of "emotional learning analytics" whereby learners' interactions with the learning environment, and others within it, can be considered for their emotional content, and information relating to learners' emotional experience can be made available to students and tutors for reflection and discussion. So the field of online learning could, in time, experience the introduction of more emotionally oriented tools and a greater focus on learners' emotions.

6.3 Further research

As discussed previously, there were some methodological issues with the research, and therefore some obvious ways in which undertaking further, similar research would be beneficial. So the same basic approach (outcome measures, linguistic analysis and qualitative interviews) could be utilised with the following amendments:

- increase the number of participants - more students
- increase the type of participants - collect data from tutors as well as students; collect data from courses on different subjects with differing levels of emotional content in the course materials and learning objectives
- increase the amount of data being gathered – rather than giving the outcome measures in weeks 1 and 10, they could be given at more regular intervals, so that progress throughout the module could be tracked; similarly, data from throughout the course could be analysed with the linguistic analysis software, not just from the first and last weeks
- increase the types of data being analysed – as well as discussion forum postings, the synchronous chatrooms could be analysed

These changes would be likely to increase confidence in the existing findings, and/or add new findings. There would also be the opportunity to further evaluate the effectiveness of the three approaches and importantly, it might be possible to combine the methods in a more productive way, in line with best practice from the "mixed methods" research community, e.g. analysis of outcome measures could inform which linguistic categories are inspected; linguistic analysis could inform the questions asked in the qualitative interviews.

Further research should consider involving e-learners/participants as partners in the research, for example helping to develop a more systematic application of the current research design by asking e-learners to complete a shorter array of outcome measures - which they themselves had trialled and approved - on a more frequent basis. E-learners/participants could advise on how a "learning analytics" approach could be adopted, with the LIWC (or similar linguistic analysis tool) being applied to online texts in an automated way, so that e-learners could receive real-time feedback - in ways they found most useful - on their emotions as detected in the text. This would be of primary interest to courses where learning objectives have an emotional element; however, given the importance of emotions in student engagement and satisfaction, there are also applications to more general e-learning contexts.

6.4 Transferability

Referring back to Guba and Lincoln's concept of transferability, namely the degree to which the results can be generalized or transferred to other settings or contexts (Lincoln & Guba, 1985), it is important to consider what the results may mean for the area of online learning in psychotherapy training, and how far the findings can be extended outwards into, for example, more general online learning theory. Do the findings hold true for other subjects in online learning? Are there any implications for face-to-face learning in psychotherapy, or other subjects?

The findings of this research come from a learning context where students were required to consider emotional topics during formative and summative assessment. Given the topics being discussed, and the backgrounds of learners as clinicians and lifelong learners, the "culture" of the learning community was one which valued and validated emotional expression. Given the nature of discussions which often touched on personal issues, students were encouraged to be open about emotional issues. This is quite a different learning community compared to one where emotions are not on the agenda as part of the course materials, and learners are not routinely supported in discussing personal, emotional issues (indeed they may be discouraged from doing so). The population was also particular

in certain demographic respects – this was a postgraduate course, so participants were academically able (they had already obtained undergraduate degrees or equivalent experience to be able to apply for the programme). Naturally, they were a mature group (average age across all e-learners was 41), with significantly more female than male students.

It does seem likely from the research evidence that students in learning communities in any context – both offline and online - will experience some of the same group dynamics and processes; however, the medium within which communication is taking place, the pedagogical model being used, the established norms around group behaviour and the boundaries set up by tutors will have a big influence on how much explicit discussion occurs of emotional processes. So any new student commencing online learning is likely to experience anxiety, and it will have certain effects on their activity and learning. Similarly, in an online group where one student dominates or is dismissive of others, this is likely to cause resentment amongst peers; whether this is voiced by group members, or tolerated and ignored, is another matter, and the tutor's role in facilitating the group is key. Understanding and responding to these dynamics appropriately is very important for student well-being, satisfaction, retention and performance. So even though explicit and in-depth discussion of emotions may not be a learning objective for every online course, the findings of this research are potentially relevant, because emotional processing is continually taking place – whether this is brought to the attention of others or not – and it is having an impact on individual and collective learning.

6.5 Implications for practice

This research suggests that those providing online learning should be familiar with and – if necessary – receive training in the dynamics which take place in online learning communities. One way for tutors and trainers to develop the necessary skills and awareness would be to experience online learning themselves as students before being involved in teaching. Many such opportunities now exist with the rise of MOOCs, and although the pedagogical model may differ from that of the course they will be working on, it could still be beneficial for prospective tutors to engage in a MOOC or other online learning before commencing work with others. A concrete example of how this might be useful is the experience of anxiety. This research suggests that most students experience significant anxiety at the start of their online studies. For some students, this subsides if they are provided with opportunities to engage safely with others and start to realise that everyone is feeling something similar; for others, the anxiety remains a problem, and they may always

struggle to feel confident with others online. A tutor who has experienced these same feelings of anxiety is much better equipped to notice and respond appropriately to online learners as they encounter and manage these experiences. In the course of their learning, this tutor may have experienced particular important events online such as engaging in self-disclosure or responding to the self-disclosure of others. This brings a level of awareness and empathy which is likely to be very useful in helping others navigate similar experiences. Through their own online learning, and the example of others (good and bad), tutors are also likely to have picked up some practical tips on how best to interact with students, e.g. the optimal frequency of interacting, the length of contributions, etc. Whilst these tips can be passed on in training situations, this is no substitution for personal experience where the emotional salience of an event can be felt rather than simply relayed and imagined.

The research suggests that a learning analytics approach can be applied to online learning in psychotherapy – and potentially other subjects too – to provide feedback to learners and tutors on emotional dynamics and engagement. As per the previous section on transferability, it is likely that even in subjects where emotions are not an explicit focus for the learning, students will still be experiencing many emotional reactions as they learn with others, and being able to recognise and talk about these reactions is crucial. If such opportunities are not available, there is the potential for the community to feel that emotional issues cannot be openly discussed, and this puts students' psychological well-being at risk, and means that emotional processes can become barriers to, rather than vehicles for, learning.

Related to this, learning could potentially be personalized according to learners' emotional needs, where the focus is on maximising individual student engagement whilst building a learning community where all participants have equal access to resources and opportunities for learning and self-development. So where it is apparent, through learning analytics, that a student is not engaging as well as they might, the teaching staff could intervene, discuss the situation with the student and explore ways in which the learning could be tailored to better meet their needs.

A final implication relates to psychotherapy education. Data from this research, most notably the interviews, provides varying results on the acceptability of online learning to research participants. Whilst the majority enjoyed their studies and would recommend it to others, and dropout rates from the course were low, there was a small but significant number of participants for whom online learning was not acceptable. It seems that some people prefer face-to-face interaction when engaged in this kind of learning. So one implication is that in general, it would be useful for those people to pursue face-to-face rather than online learning. It may be that learning analytics can be employed to provide early feedback on

students' engagement online, and where it appears that someone may not be well suited to online learning, they could be provided with information on their options for changing the mode of study. From analysis carried out in this thesis, there does not seem to be anything in psychotherapy education which makes it inherently unsuitable for online learning. Indeed, for those who enjoyed this mode of study, it seems that online interactions bring some particular benefits to those studying psychotherapy, such as the ability to reflect on interpersonal processes in synchronous and asynchronous communication, and the potential for students to feel comfortable in self-disclosure of difficult or sensitive material, which is useful for those exploring psychotherapy practice and theory.

The last word should go to those with the most insight into the role of emotions in e-learning, the students themselves, and should come via the most successful method identified by this research, the qualitative interviews. The first two students interviewed seemed to encapsulate much of what was said subsequently. One student described the transformative learning she engaged in online, and how e-learning enabled her to flourish through trusting her peers and discussing emotionally sensitive issues:

> Jo: … I don't know why there should be a bigger trust element online than in a classroom because when you think about it, anybody could have just copied and pasted anything any of us said and forwarded it to a friend and said "Urr, look what she thinks..." do you know what I mean?... So I don't know why, so I don't know if it's that you trust them more, I think it must be something to do with being, perhaps with being anonymous but it didn't feel like that, I just felt that was- in that group anyway- I just felt that that was an incredibly special and supportive group and it felt like a special relationship between us in that group, it felt like there was more going on than just being an online group…

And the second student described how the online space enabled her to engage in genuinely reflective interpersonal learning, more so then her face-to-face clinical training:

> Elizabeth: ... so something about, yeah, what are you bringing to that space then, umm, where you're all going to meet and... I, umm, it will sound like I'm just saying it to you but I'm not, it's that I found this far more umm reflective, as a practitioner, than my training, so although we had a face-to-face, and although we had the encounter groups, this had more learning that would relate to being with a person in a room, I thought. Mm.

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APPENDICES

I- MSc in Psychotherapy Studies- Course curriculum

UNIT 1- WELL-BEING AND HEALTH
Week 1: The Information Office
Week 2: The philosopher's view-point
Week 3: The Health Economist's view-point
Week 4: The psychologist's view-point
Week 5: The Doctor's view-point
Week 6: The Spiritual view-point
Week 7: The psychotherapist's viewpoint
Week 8: Values and the narrated self
Week 9: Psychotherapy as a means of increasing health and well-being- Emotional and relationship factors determining health
Week 10: A well-lived life

UNIT 2- EXISTENTIAL AND HUMAN ISSUES
Week 1: Human Nature- Paradox Plantation
Week 2: Anxiety and other emotions
Week 3: Sexuality
Week 4: Meaning Mill
Week 5: Transformation and life events
Week 6: Safety Treehouse
Week 7: Communication Farm
Week 8: Closeness: children, parents, partners
Week 9: The Precipice: Grief and Loss
Week 10: Maturity Treasure Chest

UNIT 3- CONFLICT AND RECONCILIATION
Week 1: Introduction to theories of conflict and conflict management
Week 2: Why conflicts fail to resolve Duelling Hall
Week 3: Professional approaches to conflict management
Week 4: Boundaries and conflict- Dividing Wall
Week 5: Social Dimensions of Conflict- Refuge Castle
Week 6: Psychological consequences Hospital
Week 7: Individuals in conflict with themselves- Turmoil Studio
Week 8: Torn Home- Families in conflict
Week 9: Organizations and communities in conflict- Battle Valley
Week 10: How conflicts resolve- Resolution Parliament

UNIT 4- OVERVIEW OF DIFFERENT METHODS OF PSYCHOTHERAPY AND PERSONAL CHANGE
Week 1: Introduction and symptomatic treatments
Week 2: Short-term therapies, and predicaments- Panic Woods
Week 3: Short-term therapies, and predicaments- Panic Woods
Week 4: Personality- Character Fair
Week 5: Personality Development- Personality Circus
Week 6: Psychodynamic Therapies- Psychoanalysts' Camp
Week 7: Schema-based therapies- Schema Casino
Week 8: Group and systems therapies- Group Stadium
Week 9: Existential and Narrative Therapies- Narrative Theme Park
Week 10- Conclusions: Therapy Zoo

UNIT 5- ETHICS IN COUNSELLING AND PSYCHOTHERAPY
Week 1: Introduction to Morality and Ethics
Week 2: Consent
Week 3: Confidentiality
Week 4: Non-exploitation
Week 5: Ethical Codes

UNIT 6- CULTURAL COMPETENCE IN PSYCHOTHERAPY AND COUNSELLING
Week 1: Discrimination
Week 2: Culture
Week 3: Culture and universality
Week 4- Competence Library
Week 5: Culture

UNIT 7- DEVELOPMENT THROUGH THE LIFE-CYCLE: NORMAL, DISTRESSING, AND DISABLING
Week 1: Introduction
Week 2: Distress and development
Week 3: Bodily development
Week 4: Developmental stage theories
Week 5: Social Development
Week 6: Emotional development
Week 7: Developmental Themes
Week 8: Life Stages
Week 9: Existential and Narrative Therapies- Narrative Theme Park
Week 10: Transcendence

UNIT 8- RESEARCH METHODS
Week 1: The research question, concepts and indicators
Week 2: Research design
Week 3: Validity and reliability
Week 4: Sampling in social research
Week 5: The survey (quantitative data collection)
Week 6: Quantitative data analysis
Week 7: Qualitative methods of data collection
Week 8: Qualitative data analysis
Week 9: Critical appraisal
Week 10: The ethics of research
Week 11: Getting published
Week 12: The philosophy of science

II- Search strategy

Web of Knowledge search

Set	Search term	Results
# 1	Title=(elearning) OR Title=(e-learning) OR Title=(online learning) OR Title=(computer-assisted learning)	8,612
# 2	Title=(emotion*) OR Title=(affect)	530,793
# 3	#1 AND #2	59
# 4	Duplicates from this search removed	49

(*Timespan=All Years; Search language=English   Lemmatization=On*)

10 results retained after screening

Ovid SP search

3 resources were selected- Embase 1974 to 2012 April 13, Ovid MEDLINE(R) 1946 to April Week 1 2012, PsycINFO 1806 to April Week 2 2012- and the following search results were returned:

Set	Search term	Results
#1	elearning.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	214
#2	e-learning.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	3408
#3	online learning.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	2158
#4	computer-assisted learning.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	922
#5	36 or 37 or 38 or 39	6382
#6	emotion.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	144968
#7	affect.mp. [mp=ti, ab, sh, hw, tn, ot, dm, mf, dv, kw, nm, ps, rs, an, ui, tc, id, tm]	930217
#8	41 or 42	1057980
#9	40 and 43	171
#10	Duplicates from this search removed	152

Nineteen articles were retained after screening.

Google Scholar search

NB- the term "affect" in conjunction with the e-learning synonyms did not produce any relevant results, so was excluded, and only "emotion" was used.

Set	Search term	Results
#1	allintitle: "emotion" "elearning" OR "e learning" OR "online learning" OR "computer assisted learning"	45
#2	Duplicates from this search removed	41

(http://scholar.google.co.uk/scholar?as_q=emotion&num=100&btnG=Search+Scholar&as_epq=&as_oq=%22elearning%22+%22e+learning%22+%22online+learning%22+%22computer+assisted+learning%22&as_eq=&as_occt=title&as_sauthors=&as_publication=&as_ylo=&as_yhi=&as_sdt=1.&as_sdtf=&as_sdts=5&hl=en)
Eight articles were retained after screening.

Mendeley search

Set	Search term	Results
#1	intitle: emotion e-learning	12
#2	intitle: emotion "online learning"	0
#3	intitle: affect e-learning	4
#4	intitle: affect "online learning"	3
#5	1 and 2 and 3 and 4	19
#6	Duplicates from this search removed	19

Two articles were retained after screening.

Scirus search

A search of Scirus was undertaken to ensure that scientific research was covered. In order to focus on books, an advanced search was undertaken for "emotion" and "e-learning" in the entire document, with only books selected under "Information types":

Interestingly, although this was in fact an inaccurate search, both by virtue of lack of specificity (it returned 378,657 results) and the search strategy used (it would have been preferable to search for books which mentioned "emotion" and "e-learning" in the title or, failing that, as keywords, but both of these searches returned no results), it did prove fruitful in that the first result was a dissertation by Nancy Staus called "Crossing the Cartesian divide: an investigation into the role of emotion in science learning" (Staus, 2012) which provided a thorough and very useful overview of research into emotions and learning, much of which is of relevance to the current research question. Subsequent searches via Scirus for books on emotion and e-learning did not return any results, so they are not included in the analysis.

Other searches

In order to keep track of newly published research, a number of other searches were employed which would provide continual updates on new articles.

Zetoc

An email alert was set up for research catalogued by Zetoc, a research database giving access to over 28,000 journals, 45 million article citations and conference papers through the British Library's electronic table of contents.

RSS subscriptions

A number of RSS feeds from websites were scrutinized during the course of the research for relevant articles:

http://mindblog.dericbownds.net/
http://e4innovation.com/
http://academic-conferences.org/ecel/ecel-home.htm
http://fm.schmoller.net/
http://good.group.shef.ac.uk/blog/
http://www.wired.co.uk/

Newsletters

On recommendation of the supervisor, a subscription to "OLDaily E-Learning News, Opinion, Technology" by Stephen Downes was set up. This yielded 1 paper for inclusion in the final data set.

III- Characteristics of included studies

Study	Participants	Method	Outcome
(Spielberger, O'Neil, & Hansen, 1972)	16 7th grade students	Comparison of Computer Aided Instruction (CAI) and Laboratory (LAB) settings. The procedure was: Administration of STAI A-scale; presentation of science tasks in CAI setting; administration of STAI A-scale immediately after CAI presentation; performance in science LAB; second administration of STAI A-scale	Level of A-State higher when task undertaken in LAB than CAI. Higher levels of A-State were evoked by more difficult CAI materials than by easy CAI materials. High A-Trait subjects responded to learning tasks with higher levels of A-State than low A-Trait subjects. High A-State students made more errors and avoidance responses in LAB than CAI. Performance on CAI task was an interactive function of level of A-State and task difficulty. High A-State subjects performed more poorly on difficult CAI materials than low A-State subjects. No consistent relationship found between A-State and performance on easier CAI tasks. Performance was related to A-State, and A-state moderately correlated with A-Trait; however, no systematic relationships found between A-Trait and performance on CAI learning tasks. CAI appears to be no more threatening to high A-Trait subjects than it is to low A-Trait subjects when they are given factual feedback about correctness of their responses.
	Undergrad students	Students completed some learning materials via CAI; A-state scale of STAI administered; systolic blood pressure measured	
	44 undergrad students- 22 with high A-Trait scores, 22 with low A-Trait scores	Participants learned how to use CAI system; then they were presented with learning materials; finally, subjects were interviewed and debriefed. Stait A-scale tests given during learning task.	
	Undergrad students with high or low A-Trait scores	Students given task, told they would be assessed during it, and given negative feedback about their performance (stress) or rest (non-stress). Participants learned how to use CAI system; then they were presented with learning materials; finally, subjects were interviewed and debriefed.	
(Leherissey, O'Neil, Heinrich, & Hansen,	148 female undergraduate students	Students were administered STAI A-Trait Scale, and assigned to groups on basis of their scores. Then they were given a task to do on a computer under a variety of conditions, and further A-Trait	High trait anxiety associated with high levels of state anxiety; different tasks also produced differing levels of state anxiety.

Study	Participants	Method	Outcome
1973)		Scales during and after the task.	
(Ekman & Friesen, 1978)		Facial Action Coding System (FACS)	
(O'Regan, 2003)	11 e-learning students (both genders, undergraduate and postgraduate) at an Australian University	Qualitative interviews	Participants identified significant emotions- frustration, fear/anxiety/apprehension, shame/embarrassment, enthusiasm/excitement and pride- as well as contexts in which these emotions seemed to inhibit or enhance the teaching/learning process
Anolli et al (2005)	34 students (16 male and 18 female) of the University of Milan-Bicocca (M = 22.62; SD = 1.30).	Emotions considered were: anger, joy, sadness, fear, contempt, shame, guilt, pride, frustration and boredom. Physiological measures (Heart Rate; Skin conductance; Respiration Rate; Respiration Amplitude, Finger Blood Amplitude; Electromyography of the extensor muscle of the forearm); nonverbal behavior related to facial expression and posture. Battery of paper-and-pencil tests (Big Five Questionnaire and Emotion Regulation Questionnaire) to assess some personality and emotional management style characteristics of the participants, as potential variables modulating the emotional expression at different levels.	
(Wosnitza & Volet, 2005)	n/a	Review of research	Identifies a range of methods for accessing emotions related to learning, and discusses the usefulness of these methods to investigate the origin and direction of emotions in social online learning. The paper highlights the multiple directions emotions can take and the significance of students' interpretations of their emotions on the learning

Study	Participants	Method	Outcome
			process. The issues of disclosure and access are identified as critical in research on emotions in social online learning.
(Cooper, 2005)	242 participants	Participants tested on their individual learning styles and online learning self-efficacy before being randomly assigned to one of six conditions	Research indicated a strong relationship between learning style, recall and satisfaction. Abstract learners had higher recall scores and were more satisfied in the online learning environment than concrete learners. Online learning self-efficacy was found to play an important role with recall and satisfaction in the online learning environment. Content delivery method also affected content satisfaction.
(Scotti, Mauri, Barbieri, Cerutti, & Mainardi, 2006)		Measuring skin conductance, blood volume pulse, electrocardiogram and electroencephalogram	
(Allen, 2007)	25 students enrolled in an online nursing management course	Analysis of transcripts of online postings, classified into critical thinking and affective categories	Researcher developed "Affective and Critical Thinking Interaction Template (ACTIT)"; validated an instrument and method to examine relationship of affective and critical thinking. Critical thinking seemed to be dependent on affective behaviours. Critical thinking seemed to benefit from affective behaviours. Design and development of online learning should include an affective component; faculty and student orientation could incorporate these strategies
(Giani et al., 2007)	Medical students	Analysis of student notes and discussion forum postings	
(Gilmore & Warren, 2007)	Two tutors	Participants (tutors) reflected on own participation in and facilitation of 24 online seminars. All of the 24 logs from these sessions were coded and analysed.	Online interactions may break restraints experienced within the classroom, facilitating not only spontaneous play with and absorption in online discussion, but greater emotional expressiveness by all parties. The characteristics of the

Study	Participants	Method	Outcome
			virtual medium seemed to result in students feeling more comfortable in 'speaking out' online, particularly for less sociable/outgoing student. Teaching using online seminars does appear to change the emotional context that this work is performed within.
(Moneta & Kekkonen-Moneta, 2007)	414 college students from Hong Kong. An introductory computing course was delivered once in a lecture format (105 students) and twice in a rich interactive multimedia online format (180 and 129)	A simplified experience sampling method was used to assess affective learning at the midterm and end of each course in terms of intrinsic engagement, extrinsic engagement, and negative affect in course activities. Affective states also classified by two accomplished teachers.	Compared to lectures, e-learning modules fostered more intrinsic engagement, comparable extrinsic engagement, and more negative affect.
(D'Mello, Taylor, Davidson, & Graesser, 2008)	28 undergraduates	Participants interacted with the AutoTutor program for 32 minutes on one of three randomly assigned topics in computer literacy, Students' audio and video was captured for analysis. The videos of face and screenshots were synchronized. Participants made judgements on what affective states were present at 20-second intervals.	The classification of the teachers was not very reliable and did not match the learners' self-reports.
(Dragon et al., 2008)	34 students in US public school	Students used tutoring software for three weeks; while they did so, three researchers coded behavioural variables and subjective variables, such as valence of the students' emotion	Negative valence emotions were observed only 8% of the time. 73% highly desirable states, 3% medium desirable states and 24% non-desirable states were observed. Valence (or student energy) was significantly correlated to pretest math score. Arousal (or student activity) was negatively correlated with pre-tutor learning orientation. The emotional scale was correlated with pretest self-

Study	Participants	Method	Outcome
			concept. Being on-task is significantly correlated to posttest self-concept in math. Similar significant correlations were found for this variable as for the on/off task. Several correlations were discovered among student behaviour and the desirability value.
(Luneski, Bamidis, & Hitoglou-Antoniadou, 2008)	n/a	Review of research	Tele-home healthcare, ambient intelligence and e-learning are areas where the potential of affective computing has already been realized and initial applications have emerged
(Rodrigo et al., 2008)	36 students (aged 14-19) participated	Students used a simulation computer game called The Incredible Machine (TIM) for 10 minutes, and an intelligent tutoring system called Aplusix for 45 minutes. Each student's affect and behaviour were observed as they used the learning software. Affective categories coded were boredom, confusion, delight, surprise, frustration, flow and neutral.	The most common affective state in both Aplusix and TIM was flow (62% of the time in TIM and 68% in Aplusix). This difference was marginally significant. Second most common affective state was confusion (TIM- 11%, Aplusix- 13%). Difference not significant. Delight was not statistically significant. Frustration was more common in TIM (6%) than Aplusix (2%). Boredom was more common in TIM (7%) than Aplusix (3%). Overall, affective experiences were more positive within Aplusix than TIM.
(Zembylas, 2008a)	22 in-service teachers	Qualitative analysis of the learners' monthly emotion journals, two face-to- face semi-structured interviews, 867 email messages exchanged throughout the course between tutor and students, tutor's own reflective journal, field notes from whole-group or individual face-to-face meetings and phone conversations, documents of learners' work, and tutor's planning related to the various aspects of teaching this course	(1) adult learners (who also happen to be novice online learners) respond emotionally and talk about their emotions in relation to online learning; (2) emotion talk changes from the beginning of the course to the end, always in response to specific demands and dimensions of online learning; (3) that there are differential emotional responses between men and women in relation to their social and gender roles and responsibilities.
(Zembylas,	As above		

Study	Participants	Method	Outcome
2008b)			
(A. Artino & Stephens, 2009)	481 undergraduates from the U.S. Naval Academy	Approximately three weeks after completing a self-paced online course, students arrived at a local training unit for the face-to-face portion of their instruction, at which point they completed an anonymous, self-report survey.	
(Binali, Wu, & Potdar, 2009)	n/a	Review of research	A conceptual solution for an emotion detection and analysis system is presented
(N.-S. Chen, Wei, Wu, & Uden, 2009)	157 on-campus college students	Before the experiment, all participants were randomly assigned to 14 learning conditions. Each participant then read through the learning material and responded to questions based on which condition he/she was allocated.	The main factor affecting reflection levels is high level prompts followed by high quality observation that has a moderating effect on learners' reflection levels. However, peer feedback has no significant influence on reflection levels
(Cho & Jonassen, 2009)	220 students from 64 courses with significant online component	Administered the Online Self-Regulated Learning Inventory (OSRLI); factor analysis of affect/motivation scale	Factor analysis yielded four factors- enjoyment of human interaction, self-efficacy for interaction with instructors, concern for interaction with students, self-efficacy for contributing to the online community
(Cornachione, 2009)	52 participants	Analysis of audio segments from regular participation in synchronous sessions, audio segments from final presentation of the course project, STAI scores	Vocal expression accurately indicates anxiety levels of students in online learning environments
(Shen et al., 2009)	One healthy male graduate student	The subject was free to select the learning content, textbooks, exercises, search online, or coding. During the experiment, his emotion was naturally elicited, responding to the learning situation. The subject reported his own emotion from the emotion list whenever he felt any change, which was used to label the data. The data were collected from	The results about emotion recognition from physiological signals achieved a best-case accuracy (86.3%) for four types of learning emotions. And results from emotion revolution study showed that engagement and confusion were the most important and frequently occurred emotions in learning, which is consistent with the findings from AutoTutor project. Experiments indicated the superiority of

Study	Participants	Method	Outcome
		three sensors: a skin conductance (SC) sensor, a photoplethysmyograph measuring blood volume pressure (BVP), and a pre-amplified electroencephalograph sensor measuring EEG activity from the brain	emotion aware over non-emotion-aware with a performance increase of 91%
(Hampton, 2010)	152 urban online community college students	2,522 discussion postings resulting from discussions of students were content-analyzed and the students were asked to respond to questions concerning learning style, online communication competency, and social presence	The student characteristics of age, gender, learning style, and online communication competency did not significantly affect student immediacy behaviour
(Luneski, Konstantinidis, & Bamidis, 2010)	n/a	Review of research	The amount of work and projects reviewed in this paper witness an ambitious and optimistic synergetic future of the Affective Medicine field
(Rothkrantz, Datcu, Chitu, & Chiriacescu, 2010)	12 MSc students in a student lab were connected to the Web via a PC equipped with Webcam and Microphone	Emotions assessed via analysis of nonverbal behaviour, speech analysis and analysis of facial expression, e.g. blink rate	Students showed overt emotions under special conditions with strong emotional triggers. The researchers were able to assess strong emotions up to some level.
(Feidakis et al., 2011)	n/a	Review of research	Review of research into emotion and (e-)learning; proposal of a new emotion taxonomy that originates from the basic emotions of fear and affection.
(Lee, 2011)	n/a	Literature review	The most frequently appearing issues in the literature include emotions experienced and factors influencing emotional experiences; effects of emotions, and emotional strategies in learning process and outcome; and instructional factors or instructional design model facilitating positive emotions experienced during learning. The findings

Study	Participants	Method	Outcome
			support the idea that emotional intelligence can help to enhance learners' positive attitude.
(Marchand & Gutierrez, 2012)	291 graduate students (N=219 for the traditional education group and N=72 for the distance education group) enrolled in an introductory research methods course.	The relations among temporally-ordered variables, including beginning-semester self-efficacy, utility value, and relevance of instruction, mid-semester emotions (hope, frustration, and anxiety), and end-of-semester learning strategies were examined.	The groups differed with respect to several paths, including the paths from: extrinsic utility value to anxiety and to hope; relevance to hope; and frustration and anxiety to learning strategies.
(Koutropoulos et al., 2012)	536 participants in MobiMOOC who posted 1827 messages on topic	Emotive vocabulary was examined to determine whether it could serve as a mechanism for predicting future and continued participation in the MOOC. A narrative inquiry approach was used.	Results indicated that emotive vocabulary usage did not significantly predict or impact participation retention in MobiMOOC.

IV- Theories of emotion

There were various perspectives of theories on emotions identified in the literature review, most notably psychology and sociology theories:

Perspective	Theorist(s)	Conceptualization of emotion
Psychological	(Pekrun, 2006)	Private components of the personality structure of an individual- emotion as an essentially individual phenomenon (Zembylas 2008); emotions are reduced to little more than internal personality dynamics most often divorced from social and cultural contexts
Sociological	(Barbalet, 1998; Harré, 1986; Lupton, 1998)	Socially or culturally constructed- emotions as socially constructed in the group dynamics of social situations and how those situations uni-directionally shape emotional experiences and expression (Zembylas 2008); often ignored in this perspective are both the individual aspects of emotion and the reciprocally shaping interactions of emotion and socialization
Evolutionary	(Barbalet, 1998; Darwin, 1965; Frijda, 1994; Lazarus, 1994)	Darwin systematically identified and categorized comprehensive range of emotions, considering them to represent mechanisms for the adaptation and survival of the individual. Evolutionary function of emotion is still acknowledged by some contemporary writers in the field of emotion (O'Regan, 2003)
Behaviourist	(Barbalet, 1998; P. Evans, 1989; Lerner & Keltner, 2000; Rolls, 1999)	Emotions are states governed by presence or otherwise of rewarding/punishing stimuli. This is based on the principle of a pleasure/pain dichotomy, with various emotions representing seeking out or avoidance responses to relevant positive/negative stimuli. Some theorists focus primarily on emotions as motivators of behavior or 'transformations of dispositions to act'; emotions therefore seen as instrumental in influencing the choices made by an individual in response to certain stimuli (O'Regan, 2003)
Socio-cultural	(J. Averill, 1980; Damasio, 2004; N. Denzin, 1984; Goleman, 1995; LeDoux, 1996)	Emotions viewed in socio-cultural terms: - as things we catch from each other like a social virus - as 'social acts involving interactions with self and interactions with others' - as 'transitory social roles' which exists in both an interpersonal and a socio- cultural context (O'Regan, 2003)
Neurobiology	(Damasio, 2004; LeDoux, 1996)	Emotions studied in terms of their corresponding brain function. Clinical studies of the brain have identified emotion as being associated with complex biological processes in which neurological, biochemical, and sociocultural factors all play a part. Evidence from such studies shows how emotions 'retain a primacy that subtly pervades our mental life…hav[ing] a say on how the rest of the brain and cognition go about their business' (O'Regan, 2003)

Combination	(Frijda, 1994; James, 1952; Shweder, 1994; Worthman, 1999)	Emotion can be regarded as some combination (with various emphases and sequences) of physiological, psychological and psychomotor components. James was an early proponent of this general approach, defining emotion in terms of the feeling of the 'bodily expressions' which follow the perception of an 'exciting fact'. Other variations identify 'affective' and 'somatic' dimensions of emotion, 'experiential, behavioral and physiological' aspects, or 'corporeal' and 'cognitive' dimensions (O'Regan, 2003)

V- Taxonomies of emotions relevant to e-learning

Theorist	Details of taxonomy
(Darwin, 1965)	Over 30 different emotions that were further categorized into seven groups, clustering similar emotions together
(James, 1952)	'Coarser' (grief, fear, rage and love) and 'subtler' emotions 'whose organic reverberation is less obvious and strong'
(Ekman & Friesen, 1978)	6 basic emotions: (anger, disgust, fear, joy, sadness, and surprise)
(J. R. Averill, 1980)	A system of emotional classes or 'paradigms', 'impulsive', 'conflictive' and 'transcendental'
(Ortony, Clore, & Collins, 1988)	5 basic emotions (anger, fear, happiness, joy, love) and 14 secondary emotions
(Pekrun, 1992) and (Pekrun, Goetz, Frenzel, & Perry, 2011)	So-called academic emotions (4 positive: joy, hope, pride, relief and 5 negative: boredom, anger, anxiety, shame, hopelessness)
(Monique Boekaerts, 1997) and (Weiner, 2002)	Emotions generated before the learning process v emotions generated after the learning process
(Op't Eynde, De Corte, & Verschaffel, 2001)	Emotions generated during the learning process (e.g., Op't Eynde, De Corte, & Verschaffel, 2001). The
(Plutchik, 2001)	8 basic emotions arranged as four pairs of opposites (joy-sadness, trust-distrust, fear-anger, surprise-anticipation), and 8 advanced emotions each composed of 2 basic ones
(Kort & Reilly, 2002)	6 possible emotion axes (anxiety-confidence, ennui-fascination, frustration-euphoria, dispirited-enthusiasm, terror- excitement, humiliated-proud) that may arise in the course of learning together with a 4 quadrant model relating phases of learning to emotions
(Linnenbrink & Pintrich, 2002) and (Pekrun, Goetz, Titz, & Perry, 2002)	Positive emotions (e.g., relief, hope, pride); and negative emotions (e.g., anger, envy, sadness)
(Damasio, 2004)	Distinguished between primary (anger, fear, happiness, and sadness) and secondary emotions
(Wosnitza & Volet, 2005) (Pekrun et al., 2002; Weiner, 2002)	Discusses solo v learning situations- in a solo learning situation, socially oriented emotions (rather than oriented towards the task or the technology) usually are self-directed rather than directed at other people, e.g. enjoyment of the online-learning experience, hope of success, pride and shame. In a social learning situation, other-directed emotions may also arise in addition to self-directed emotions, e.g. gratitude, envy, sympathy, admiration or ''schadenfreude''
(Rha & Sung,	6 domains of emotional expressions elements (pleasure, concern,

2007)	disappointment, anger, pride and delightfulness) frequently experienced in online learning community using an electronic bulletin board. Among the 6 domains, in general, pleasure and pride were identified as the most frequently experienced in order. They also found certain emotion factors are rather frequently used by certain dimensions of messages. 'Pleasure' appeared evenly in all the message dimensions, however, 'pride' appeared strongly only in the cognitive and metacognitive dimensions which are strongly related to 'learning' (Lee, 2011)
(Kim, 2009)	Various emotions including frustration, resistance, pride, relief, expectation, fear, anxiety, hopelessness, confidence, envy, and complex experienced in online discussion process; and confirmed that emotion functions with the integration of cognition, motivation, and action

VI- Models of emotion

Larsen and Buss (2002) propose three dimensions:

- Activation (low to high)
- Affect (negative to positive)
- Pleasant (unpleasant to pleasant)

and suggest that any emotion can be located somewhere in 2 dimensional space with the above axes. Various other theorists have proposed graphical representations of emotion and learning in 2 dimensions, e.g. Russell's "Circumplex model of affect" (Russell, 1980):
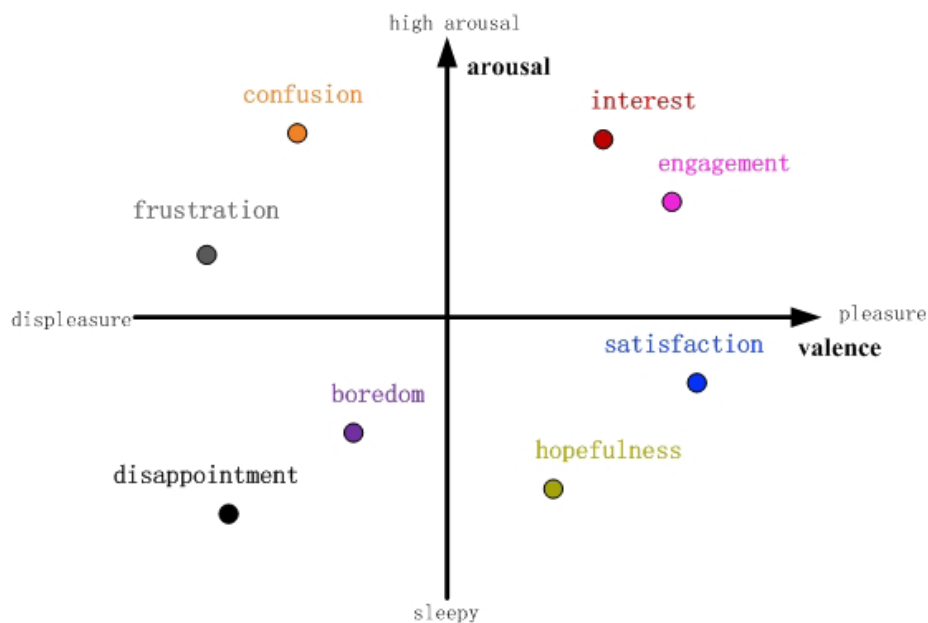
and Kort et al's "Spiral Model of Learning" (Kort, Reilly, & Picard, 2001)
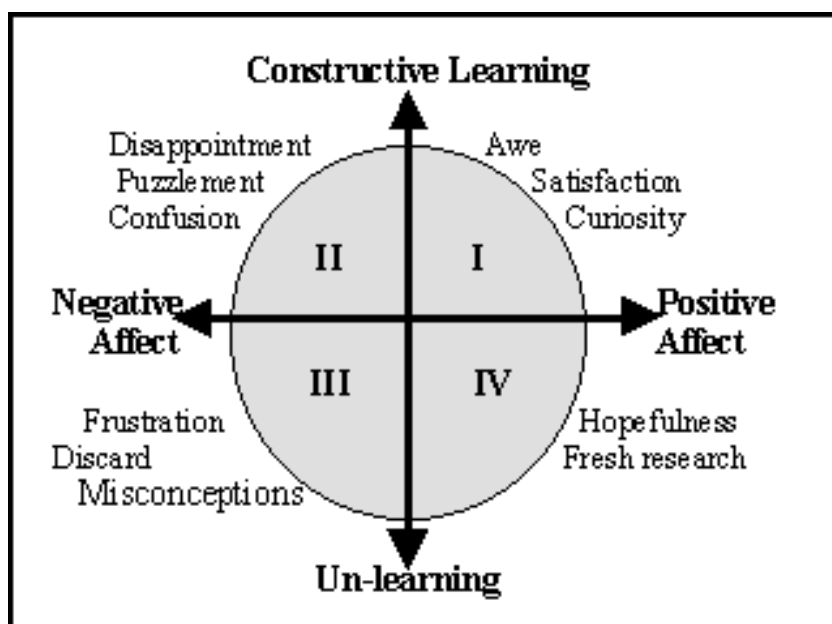
Staus presents a model of emotion and learning (Staus, 2012)
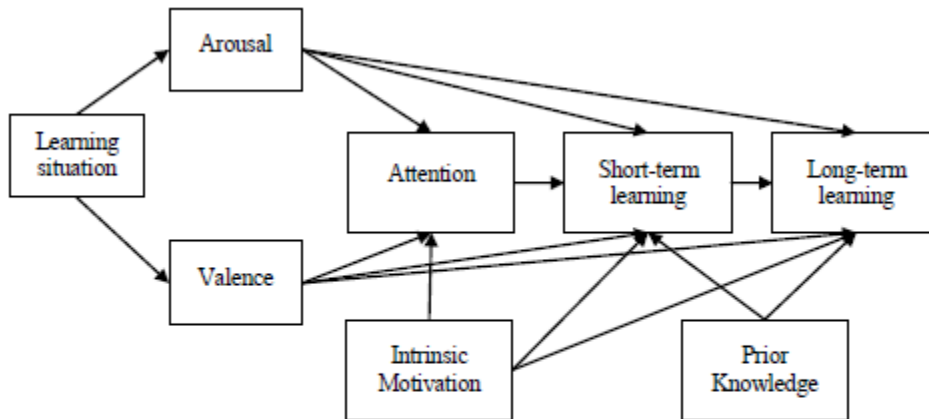
Figure 4. Theoretical model of emotion and learning, based on information processing, persuasion, and educational perspectives, representing the relations among emotion, attention, intrinsic motivation, prior knowledge and learning.

VII- Results from subsidiary searches on measuring or detection of emotion

Sixteen references were returned from the existing literature review data set, 10 of which (shown under search strategy 1) were relevant and available. In addition, 13 articles from the existing literature review data set but not returned by searches for "measuring" or "detection" (shown under search strategy 2) were included. Finally, 37 articles from additional *Google scholar* searches and reference snowballing were included (shown under search strategy 3). Findings are shown grouped by search strategy and within these groupings in chronological order below:

Theorist	Search strategy	Method for measuring emotions
(Alm, Roth, & Sproat, 2005)	1	Text-based emotion prediction using supervised machine learning
Luneski et al. (2008)	1	Review of research Measuring electrodermal activity
Artino & Stephens (2009)	1	Emotions measured via self-report questionnaires, comprised of items from various measures: Motivational Beliefs- (A. R. Artino & McCoach, 2008) Negative Achievement Emotions- adapted from the Achievement Emotions Questionnaire (AEQ); (Pekrun, Goetz, & Perry, 2005)) Self-Regulated Learning Strategies- derived from the Motivated Strategies for Learning Questionnaire (MSLQ; (Pintrich, Smith, Garcia, & McKeachie, 1993)) Satisfaction- adapted from (A. Artino, 2008)
(Cella, Dymond, & Cooper, 2009)	1	Measuring emotion-based learning using a variant of the Iowa Gambling Task (IGT) with hallucination- and delusion-prone university students
(Cho & Jonassen, 2009)	1	Use of Online Self-Regulated Learning Inventory (OSRLI)
(Shen et al., 2009)	1	Measuring electrodermal activity
(Luneski et al., 2010)	1	Review- includes measuring physiological changes
(C.-M. Chen & Lee, 2011)	1	Measuring of pulse, and use of Fast Fourier Transform (FFT) software to transform original time-domain pulse signals into frequency-domain signals (which vary as human emotions vary)
(Pekrun et al., 2011)	1	Reports on the construction, reliability, internal validity, and external validity of the Achievement Emotions Questionnaire (AEQ) which is designed to assess various achievement emotions experienced by students in academic settings.
(Staus, 2012)	1	Review of research
(Leherissey et al., 1973)	2	Use of State-Trait Anxiety Inventory questionnaire

Theorist	Search strategy	Method for measuring emotions
(O'Regan, 2003)	2	Review of research Qualitative analysis of interviews with e-learners
(Anolli et al., 2005)	2	Physiological measures and paper-and-pencil tests- see table 7 for details
(Wosnitza & Volet, 2005)	2	Review of methods for accessing emotions related to learning including their own research (Volet & Wosnitza, 2004; Wosnitza, 1993, 2003) using multiple methods for accessing emotions related to social online learning
(Scotti et al., 2006)	2	Measuring skin conductance, blood volume pulse, electrocardiogram and electroencephalogram
(Giani et al., 2007)	2	Coding of emotions by staff
(Gilmore & Warren, 2007)	2	Tutor experience- tutors reflected on own participation in and facilitation of 24 online seminars. Then the transcripts of these were analysed.
(Zembylas, 2008a)	2	Analysis of e-learners' monthly emotion journals, semi-structured interviews, email messages, researcher's reflective journal, field notes, documents of learners' work, and researcher's planning (see table 7)
(Zembylas, 2008b)	2	Analysis of same data set as above
(Binali et al., 2009)	2	Textual analysis of e-learning students' reflective writing- see table 7 for details
(Cornachione, 2009)	2	Measures of anxiety from: Analysis of student audio files State-Trait Anxiety Inventory (Spielberger, R., P., Vagg, & Jacobs, 1983)
(Feidakis et al., 2011)	2	Review of published research- and update on their own review (Feidakis & Daradoumis, 2010)- of affect detection methods and techniques that employ psychological (self-reporting), physiological (use of sensors to capture biometric signals) and behavioural (use of sensors to capture motor-behavioural activity) tools to recognise user's affective state
(Marchand & Gutierrez, 2012)	2	Use of Achievement Emotions Questionnaire (AEQ)
(Ekman & Friesen, 1978)	3	Facial action coding system (FACS)
Pennebaker, Kiecolt-Glaser, & Glaser, 1988	3	Qualitative analysis of essays on traumatic topics
Watson & Pennebaker, 1989;	3	Negative affect- 14-item Negative Emotionality (NEM) scale from Tellegen's Multidimensional Personality Questionnaire (MPQ; Teflagen, 1982; the MPQ was formerly called the Differential Personality Questionnaire) Positive affect- 1 i-item Positive Emotionality (PEM) scale from the MPQ
Pennebaker & Harber, 1993;	3	Subjects' self-rating of negative moods via questionnaires
Spera,	3	Qualitative analysis of recently unemployed participants'

Theorist	Search strategy	Method for measuring emotions
Buhrfeind, & Pennebaker, 1994;		essays
Pennebaker, Mayne, & Francis, 1997;	3	Writing about thoughts and feelings analysed via LIWC
Petrie, Booth, & Pennebaker, 1998;	3	Qualitative analysis of writing on emotional and non-emotional topics
Pennebaker & King, 1999;	3	Analysis via LIWC of diary entries of inpatients in an addiction centre, psychology writing assignments and psychology journal abstracts
Pennebaker & Seagal, 1999;	3	Analysis via LIWC of writing about traumatic experiences
Richards, Beal, Seagal, & Pennebaker, 2000;	3	Cognitive-Somatic Anxiety Questionnaire, Pennebaker Inventory of Limbic Languidness; analysis via LIWC of writing about traumatic experiences
Mehl, Pennebaker, Crow, Dabbs, & Price, 2001;	3	Data from an in-ear recording device, the Electronically Activated Recorder (EAR) Analysis- text analyses of the words used by the participant and those in the participants' environment, and judges' ratings of situational factors
Stirman & Pennebaker, 2001;	3	Analysis via LIWC of poems of 9 suicidal and 9 non-suicidal poets
Giese-Davis et al., 2002;	3	In RCT of supportive– expressive group therapy for women with metastatic breast cancer, the following scales were used: Suppression of affect- The Courtauld Emotional Control Scale (CECS; Watson & Greer, 1983) Restraint and Repressive–Defensiveness. The Weinberger Adjustment Inventory (WAI) Emotional self-efficacy. The Stanford Emotional Self-Efficacy Scale—Cancer
Stone & Pennebaker, 2002;	3	Analysis via LIWC of internet chatroom conversations about the Death of Princess Diana
Pennebaker & Lay, 2002;	3	Analysis via LIWC of NY Mayor Giuliani's press conferences 1993-2001
Campbell & Pennebaker, 2003;	3	Analysis via LSA (Latent Semantic Analysis) of students' and prisoners' writing about traumatic memories
Gortner & Pennebaker, 2003;	3	Analysis via LIWC of student newspapers after community-wide trauma
Mehl & Pennebaker, 2003;	3	Analysis via LIWC of natural conversations and social environments of 52 undergraduates recorded using Electronically Activated Recorder (EAR)
Newman, Pennebaker, Berry, &	3	Analysis via LIWC of five independent samples to classify liars and truth-tellers

Theorist	Search strategy	Method for measuring emotions
Richards, 2003;		
Pennebaker & Stone, 2003;	3	Analysis via LIWC of: 1. written or spoken text samples from disclosure studies from over 3,000 research participants from 45 different studies representing 21 laboratories in 3 countries to determine how people change in their use of 14 text dimensions as a function of age 2. the collected works of 10 well-known novelists, playwrights, and poets who lived over the last 500 years.
Cohn, Mehl, & Pennebaker, 2004;	3	Analysis via LIWC of the diaries of 1,084 U.S. users of an on-line journaling service from the 2 months prior to and after the September 11 attacks.
Pennebaker, Groom, Loew, & Dabbs, 2004;	3	Analysis via LIWC of Emails and journal entries of two participants, a man receiving treatment for loss of upper-body strength and a female-to-male transgendered individual
Pennebaker, Slatcher, & Chung, 2004;	3	Analysis via LIWC of presidential candidates' speech in natural conversation in televised interviews
Rude, Gortner, & Pennebaker, 2004;	3	Analysis via LIWC of essays written by currently-depressed, formerly-depressed, and never-depressed college students; use of Beck Depression Inventory (BDI) and Inventory to Diagnose Depression-Lifetime
Slatcher & Pennebaker, 2006;	3	Analysis via LIWC of writing from dating couples about their deepest thoughts and feelings about the relationship or about their daily activities. In the days before and after writing, instant messages were collected from the couples and also analysed.
Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007;	3	Development of LIWC
Slatcher, Chung, Pennebaker, & Stone, 2007;	3	Analysis via LIWC of transcripts of 271 televised interviews, press conferences, and campaign debates of US presidential candidates
Wolf, Sedway, Bulik, & Kordy, 2007	3	Analysis via LIWC of 34 written essays from an unselected sample of 11 patients on an Eating Disorders inpatient unit
Chung & Pennebaker, 2008;	3	Analysis via LIWC of most commonly-used adjectives within narratives written by college students
Newman, Groom, Handelman, & Pennebaker, 2008;	3	Analysis via LIWC of a database of over 14,000 text files from 70 separate studies to examine gender differences in language use
Pennebaker & Chung, 2008;	3	Analysis via LIWC and meaning extraction strategy results of Al_Qaeda transcripts
Petrie, Pennebaker, &	3	Analysis via LIWC of Beatles' lyrics to address how the group changed as a unit over time, how the various members

Theorist	Search strategy	Method for measuring emotions
Sivertsen, 2008;		changed in their writing styles, and the overlap in lyrical styles from one composer to the next
Dodds & Danforth, 2009;	3	Using the ANEW data set, this study quantifies happiness levels on a continuous scale for a diverse set of large-scale texts: song titles and lyrics, weblogs, and US State of the Union addresses
Tausczik & Pennebaker, 2009;	3	Article reviews several computerized text analysis methods and describes how Linguistic Inquiry and Word Count (LIWC) was created and validated
Ireland & Pennebaker, 2010;	3	Analysis via LIWC of a database of over 1744 college students' essay questions; analysis via LIWC of 74 participants' completed cliffhanger excerpts; analysis via LIWC of professional writing and personal correspondence of 3 pairs of famous writers across their relationships
Wolf, Chung, & Kordy, 2010a, 2010b;	3	Meaning extraction method (MEM) applied to 4,241 e-mails written by 297 participants of an e-mail-based aftercare program following inpatient psychotherapy
Dodds, Harris, Kloumann, Bliss, & Danforth, 2011;	3	Analysis of twitter postings using an algorithm to for an algorithm measure the happiness of texts
(White, 2013)	3	Development of a self-report scale for students; scale assists education managers and marketers in capturing a richer understanding of their students' experience

VIII- Electronic identity model

Figure 14 - Electronic identity model
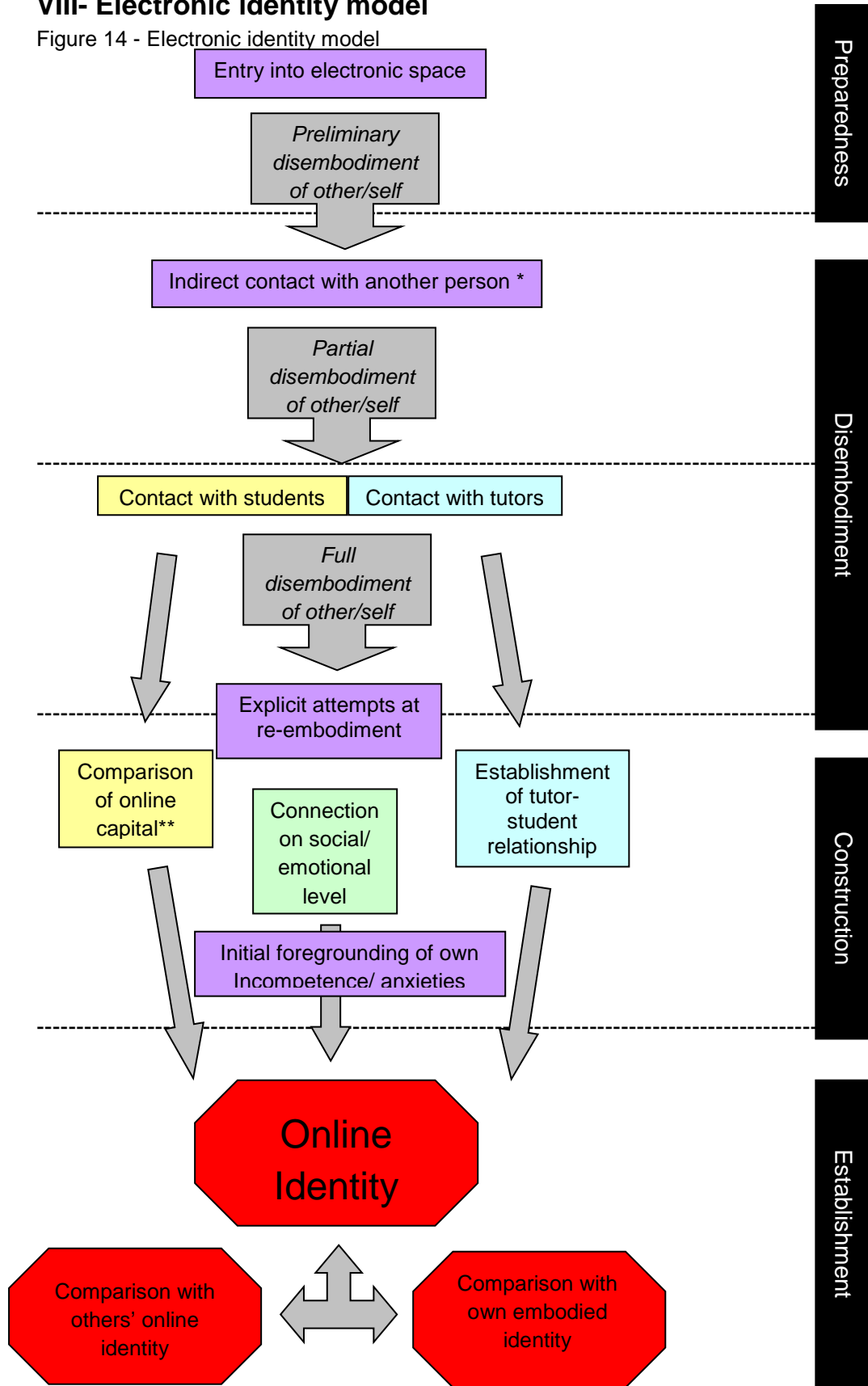
IX- Disidentification online model

Figure 15 - Disidentification online model

Embodied Identity

Entry into electronic space

Encounter with the Other online

Disembodiment

Anxiety

e b m d e t l d t v i o e d n i

Dispersal of previous identity

Re-identification in embodied life

Return to disidentification from embodied life

Continued interaction with the Other online

Creation of identity of others online

Detection of own (preliminary) identity given by others online

Imagination, projection, fantasy

Comparison of online capital** and competence in subject matter

Identity given by others

Dialogue

idealized identity

First attempts at re-assertion of identity

Connection on emotional/ social level and/or intellectual level

Developing repertoire of strategies and learning rules of interaction with the Other in online space

** includes ease of use of PC, speed of typing, confidence in comm

Ability to adopt identification appropriate to environment

Embodied Identity

Online Identity

(1) **severance**- disidentification from one's previous life stage and outdated self-images and roles
(2) **threshold**- a period of solitude, fasting, and exposure to the natural world offering a chance to test and confirm one's fitness and willingness to move on to a new life stage
(3) **reincorporation**- a return to one's life, work, relationships and community.

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X- Typology of affordances

Conole and Dyke's typology of affordances of information and communication technologies contains the following:

- Accessibility (to vast amounts of information)
- Speed of change (of information)
- Diversity (of experiences that can inform learning)
- Communication and collaboration (with the 'other')
- Reflection (particularly via asynchronous technologies)
- Multimodal and non-linear (enabling different routes through, and forms of, learning)
- Risk, fragility and uncertainty (e.g. technologies not being taken up or used in the ways originally intended; and the intrinsic level of fragility in digital technologies and networks)
- Immediacy (of information exchange)
- Monopolization (the dominance of particular software products v diversification and sharing of developments as in open source community)
- Surveillance (new means by which those with power can extend their gaze and secure greater knowledge and control over others)

(Conole & Dyke, 2004)

XI- Summary of paradigms, methods and tools

Paradigm	Methods (primarily)	Data collection tools (examples)
Positivist/ Postpositivist	Quantitative. "Although qualitative methods can be used within this paradigm, quantitative methods tend to be predominant . . ." (Mertens, 2005, p. 12)	Experiments Quasi-experiments Tests Scales
Interpretivist/ Constructivist	Qualitative methods predominate although quantitative methods may also be utilised.	Interviews Observations Document reviews Visual data analysis
Transformative	Qualitative methods with quantitative and mixed methods. *Contextual and historical factors described, especially as they relate to oppression* (Mertens, 2005, p. 9)	Diverse range of tools - particular need to avoid discrimination. Eg: sexism, racism, and homophobia.
Pragmatic	Qualitative and/or quantitative methods may be employed. Methods are matched to the specific questions and purpose of the research.	May include tools from both positivist and interpretivist paradigms. Eg Interviews, observations and testing and experiments.

(Mackenzie & Knipe, 2006)

XII- Taxonomy of Sampling Techniques for the Social and Behavioral Sciences

I. Probability Sampling

   A. Random Sampling

   B. Stratified Sampling

   C. Cluster Sampling

   D. Sampling Using Multiple Probability Techniques

II. Purposive Sampling

   A. Sampling to Achieve Representativeness or Comparability

   B. Sampling Special or Unique Cases

   C. Sequential Sampling

   D. Sampling Using Multiple Purposive Techniques

III. Convenience Sampling

   A. Captive Sample

   B. Volunteer Sample

IV. Mixed Methods Sampling

   A. Basic Mixed Methods Sampling

   B. Sequential Mixed Methods Sampling

   C. Concurrent Mixed Methods Sampling

   D. Multilevel Mixed Methods Sampling

   E. Combination of Mixed Methods Sampling Strategies

(Teddlie & Fu, 2007)

XIII- Ethics approval letters from ScHARR and Information School

Cheryl Oliver
Ethics Committee Administrator

Regent Court
30 Regent Street
Sheffield S1 4DA
Telephone: +44 (0) 114 2220871
Fax: +44 (0) 114 272 4095 (non confidential)
Email: c.a.oliver@sheffield.ac.uk

Our ref: /CAO

9 July 09

Chris Blackmore

ScHARR

Dear Chris

Investigation into student engagement with the online 'learning community'

Thank you for submitting the above research project for approval by the ScHARR Research Ethics Committee. On behalf of the University ethics reviewers who reviewed your project, I am pleased to inform you that the project was approved.

If during the course of the project you need to deviate significantly from the documents you submitted for review, please inform me since written approval will be required.

Yours sincerely

Cheryl Oliver
Ethics Committee Administrator

Information School Research Ethics Panel

Letter of Approval

Date: 23rd May 2013

TO: Christopher Blackmore

The Information School Research Ethics Panel has examined the following application:
Title: The role of emotions in online learning in psychotherapy
Submitted by: Christopher Blackmore
And found the proposed research involving human participants to be in accordance with the University of Sheffield's policies and procedures, which include the University's '*Financial Regulations*', '*Good Research Practice Standards'* and the '*Ethics Policy Governing Research Involving Human Participants, Personal Data and Human Tissue'* (Ethics Policy).
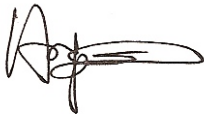
This letter is the official record of ethics approval by the School, and should accompany any formal requests for evidence of research ethics approval.
Effective Date: 23rd May 2013

Dr Angela Lin
Research Ethics Coordinator

XIV- Initial email to potential research participants

Subject: Chris Blackmore- PhD interviews
06/06/2013
Hi,
I hope you are well.
As a fairly recent ex-student of the MSc in Psychotherapy Studies, I am writing to see if you would be interested in participating in my PhD research on "the role of emotions in online learning in psychotherapy". I hope to interview some ex-students of the programme about their experience, either in person or via Skype.
I have used the contact address you have for the course, as your Sheffield Uni email accounts will have been withdrawn. At this stage, I just need to know if you are interested in finding out more. If so, please let me know by return email, and I will forward you an Information Sheet and Consent Form for your consideration.

Best wishes,

Chris

--
Mr. Chris Blackmore
Course Director- MSc in Psychotherapy Studies,
Distance Learning lead for School of Health and Related Research,
Regent Court,
30 Regent Street,
Sheffield
S1 4DA
Direct line: +44(0)114 2220848
Fax: +44 (0)114 272 4095
Email: C.M.Blackmore@sheffield.ac.uk
http://www.sheffield.ac.uk/scharr/sections/hsr/mh/sectionstaff/cb

XV- Follow up email to potential research participants

Subject: Chris Blackmore PhD- information sheet and consent form
28/06/2013
Dear all,

Many thanks for responding to my previous email. I attach an Information Sheet / Consent form. If you would like to participate, please print and sign the form, and post to me here at ScHARR. I will then contact you to arrange an interview.

At the end of the form, you are asked how you want to be interviewed. For those of you living in Sheffield, I will hopefully be able to meet face-to-face for the interview; for those living in other countries, I will arrange a video/telephone interview. So please do indicate which of the methods are acceptable to you, and I will contact you to arrange the interview in due course. I am still finalising the best way of conducting and recording the audio/video calls, but can discuss with individual participants what will work best.

Best wishes, and thanks for your participation,

Chris

NB if you change your email address, do please contact me so I can update my records!
--
Mr. Chris Blackmore
Course Director- MSc in Psychotherapy Studies,
Distance Learning lead for School of Health and Related Research,
Regent Court,
30 Regent Street,
Sheffield
S1 4DA
Direct line: +44(0)114 2220848
Fax: +44 (0)114 272 4095
Email: C.M.Blackmore@sheffield.ac.uk
http://www.sheffield.ac.uk/scharr/sections/hsr/mh/sectionstaff/cb

XVI- Interviewing notes and prompts

Re-stating the research question: **What is the role of emotions in online learning in a psychotherapy training programme?**

Prompts for interview

Written before first interview (1st August 2013) and not changed significantly between then and completing 3rd interview (13th August 2013). There was then a supervision session (13th September 2013).

You can discuss any aspect of <u>your</u> experience of emotion in eLearning

I am principally interested in this as it relates to the MSc in Psychotherapy Studies (but other experience *may* be relevant)

The interview will usually last for 1 - 1.5 hours (and I will let you know when we reach 1.5 hours)

Feel free to be critical about your experiences on the course or even of myself (but I won't "defend" this as I am interested in finding out about <u>your</u> experience, not justifying myself)

Although I know a bit about you, it's best if I don't assume any knowledge so I might ask questions which seem obvious

I will try not to say too much, and not to direct the conversation. Occasionally I might relate what you say back to the research question, but you can feel free to say anything- anonymity will be ensured

You can approach the subject any way you like, e.g.
- you can talk about how the experience of emotions changed over time
- you can talk about positive emotions first, then negative ones (or vice versa)
- you can talk about emotions evoked during different modules, or by different people or activities
- you can talk about which emotions were a help in your studies and which were a hindrance
- any other approach you like

It may be useful to recall specific experiences of emotion that happened to you, and describe these

I may ask you to define what you mean by a particular emotion

Notes for interviewer
Use open questions
Avoid "why" (leads to intellectualisation)
Elicit stories, e.g. "tell me about a time when…"
Follow themes in narrated order
Use phrasing of participants' own words

"Can you tell me about a time you experienced a strong emotion during your eLearning?"

"What impact did this have on your learning?"

"Can you tell me how ___ emotions seemed to enhance or promote learning? inhibit or prevent learning?

"What was the impact of your location, professional background, culture/religious beliefs?"

"Can you tell me about your emotions relating to starting and ending your time on the programme?"

"Can you tell me about how the emotions experienced on the programme impacted on your personal or family life"?

XVII- Quality framework for mixed methods research

From (O'Cathain, 2010)

Stage of study	Domains of quality	Items within domain
Planning	Planning quality	Foundational element Rationale transparency Planning transparency Feasibility
Undertaking	Design quality	Design transparency Design suitability Design strength Design rigor
	Data quality	Data transparency Data rigor/design fidelity Sampling adequacy Analytic adequacy Analytic integration rigor
Interpreting	Interpretive rigor	Interpretive transparency Interpretive consistency Theoretical consistency Interpretive agreement Interpretive distinctiveness Interpretive efficacy Interpretive bias reduction Interpretive correspondence
Interpreting	Inference transferability	Ecological transferability Population transferability Temporal transferability Theoretical transferability
Disseminating	Reporting quality	Report availability Reporting transparency Yield
Application in the real world	Synthesizability	15 quality criteria: 6 for qualitative research 3 for quantitative experimental 3 for quantitative observational 3 for mixed methods
	Utility	Utility quality

XVIII- Excerpt from P1 Conflict chatroom archive

From a chatroom session held on Wednesday, 22 June 2011

11:11 *A student:*	I;d like to talk about where we go next. What do we do with what we've learned? I've learned such alot and am filled with regret now that I din;t see it sooner...
	…
11:11 *B student:*	ya, last chat room, cant believe it... feel like my world has been all shook up...
	…
11:12 *A student:*	B: ditto exactly! and now what??
11:12 *C student:*	Better late than never A :-)
11:12 *A student:*	C: I don;t know if uit is - what difference will it make?
	…
11:12 *B student:*	me too A... I always find with this type of material it takes time to integrate...
11:12 *D tutor:*	Good questions A.
	…
11:13 *A student:*	I feel like all this stuff has been brought up and I don;t know what to do with it now..
	…
11:13 *C student:*	It might be of help in future conflicts A, I think in my case the material will make a difference to how I approach conflict
	…
11:15 *A student:*	C: yes but my point is about damage done by past conflicts or mis management thereof.. can't change anythign now.. sometimes it really is too late.. i don;t like that feeling
11:15 *E student:*	I have found with other modules that I feel slightly altered afterwards - thinking revolves around what i ahve been studying - I see links everywhere, and my head's full of it, - that in itself leads to change maybe A?

11:15 *D tutor*:	I think that you have already done the important work, A, in bringing up and thinking through these topics. Whether there is any concrete way to capture this, I don't know. Perhaps some personal writing (aside from the essay of connected to it)..
	…
11:15 *C student*:	In a practical way, I think I'll think more about conflict, when I'm in them, and even that might help towards rconciliation
	…
11:16 *A student*:	E: yes, have stopped avoiding conflict, now find myself in more of it and being shouted at!
11:17 *E student*:	Mm, I think real reconciliation is rare - resolution more often - been owrking on that this afternoon with some students!
11:17 *F student*:	This module has really gave me an insight into the way we handle conflicts in various settings, especially at my work place and in my marriage this has made a very positive impact.
11:17 *B student*:	MM Like your point E...
11:17 *E student*:	Oh oh, sounds painful A - but brave :) :)
11:18 *E student*:	more will emerge if you can stick with it I am sure A
11:18 *A student*:	E: yes, will keep going. I can always shout back!

XIXa- COLLES mean scores by partner/learning modality

Mean scores are shown below by category of COLLES items:

Partner	Relevance	Reflective thinking	Interactivity	Tutor support	Peer support	Interpretation	TOTAL
Sheffield	4.48	4.39	3.66	4.41	3.74	4.29	4.12
NSPC	4.22	4.47	3.72	4.44	3.56	4.03	4.01
Leuven	4.27	4.16	3.13	4.14	3.68	4.21	3.90
Bordeaux	3.66	3.25	1.94	2.66	1.56	3.59	2.78
Face to face learners	4.04	4.05	3.18	3.96	3.35	4.00	3.76
All e-learners	4.30	4.22	3.34	4.14	3.44	4.16	3.93

XIXb- Collaborative learning and Student activity

Kendall Tau test:

		Relevance	Reflective thinking	Interactivity	Tutor support	Peer support	Interpretation
Student activity	Correlation	.401 **	.288 *	.552 **	.224	.507 **	.199
	Sig (2-tailed)	.001	.019	.000	.067	.000	.105

For this, and all subsequent tables, * denotes significance at the .05 level (p<.05) and ** denotes significance at the .01 level (p<.01)

XIXc- Collaborative learning and Student satisfaction

Kendall Tau test:

		Mean overall COLLES scores
Student satisfaction	Correlation	.343 *
	Sig (2-tailed)	.042

XIXd- Collaborative learning and student mark

Kendall Tau test:

		Relevance	Reflective thinking	Interactivity	Tutor support	Peer support	Interpretation
Module mark	Correlation	.121	.266	-.122	.099	-.006	-.034
	Sig (2-tailed)	.512	.146	.508	.587	.971	.854

XIXe- Student activity and student satisfaction

Kendall's test:

		Student activity
Student satisfaction	Correlation	.000
	Sig (2-tailed)	1.000

XIXf- Student activity, tutor activity and student mark

Pearson test:

		Module mark	Student activity	Tutor activity
Module mark	Correlation	1	-.099	.076
	Sig (2-tailed)		.564	.671
Student activity	Correlation	-.099	1	.120
	Sig (2-tailed)	.564		.493
Tutor activity	Correlation	.076	.120	1
	Sig (2-tailed)	.671	.493	

XIXg- Student satisfaction and student mark

Kendall's test:

		Student mark
Student satisfaction	Correlation	0.004
	Sig. (2-tailed)	0.98

XXa- Correlations of well-being measures

Pearson test:

		PHQ	WEMW BS	GAD	SWIB	SWLS	SAIL
PHQ	Pearson Correlation	1	-.612**	.689**	-.09	-.453**	-.009
	Sig. (2-tailed)		.000	.000	.222	.000	.895
WEMWB S	Pearson Correlation	-.612**	1	-.542**	.163*	.453**	.064
	Sig. (2-tailed)	0		.000	.027	.000	.369
GAD	Pearson Correlation	.689**	-.542**	1	-.028	-.249**	.170*
	Sig. (2-tailed)	.000	.000		.705	.000	.016
SWIB	Pearson Correlation	-.09	.163*	-.028	1	.396**	-.033
	Sig. (2-tailed)	.222	.027	.705		0	.658
SWLS	Pearson Correlation	-.453**	.453**	-.249**	.396**	1	.058
	Sig. (2-tailed)	.000	.000	.000	.000		.415
SAIL	Pearson Correlation	-.009	.064	.170*	-.033	.058	1
	Sig. (2-tailed)	.895	.369	.016	.658	.415	

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

XXb- Tests for normality

	Shapiro-Wilk					
	Statistic	df	Sig.	skewness z	kurtosis z	Conclusion
PHQpre	0.847	31	0	3.568	2.893	not normally distributed
PHQpost	0.925	31	0.033	2.109	1.097	not normally distributed
WEMWBSpre	0.93	31	0.043	-2.333	1.294	not normally distributed
WEMWBSpost	0.954	31	0.199	-1.140	-0.301	normally distributed
GADpre	0.891	31	0.004	1.724	-0.325	not normally distributed
GADpost	0.915	31	0.017	1.753	-0.214	not normally distributed
SIWBpre	0.925	31	0.033	-1.812	0.156	not normally distributed
SIWBpost	0.911	31	0.014	-1.031	-1.322	not normally distributed
SWLSpre	0.945	31	0.115	-0.926	-0.820	normally distributed
SWLSpost	0.959	31	0.273	-0.682	-0.476	normally distributed
SAILpre	0.954	31	0.197	-0.933	-0.954	normally distributed
SAILpost	0.951	31	0.17	0.228	-1.501	normally distributed
Relevance	0.899	31	0.007	-1.261	-0.717	not normally distributed
Reflective thinking	0.923	31	0.029	-0.834	-0.738	not normally distributed
Interactivity	0.954	31	0.2	-1.380	0.190	normally distributed
Tutor support	0.915	31	0.018	-2.017	1.185	not normally distributed
Peer support	0.971	31	0.539	-0.824	-0.138	normally distributed
Interpretation	0.944	31	0.109	-1.040	-0.738	normally distributed
Satisfaction	0.911	51	.001	-2.697	1.255	not normally distributed
Activity	0.963	51	.109	-0.393	-0.360	normally distributed
Module mark	0.967	36	.350	-1.219	1.389	normally distributed
Engage	0.907	63	0	4.036	3.459	not normally distributed
Transform	0.943	63	0.006	2.805	1.299	not normally distributed
Posemo	0.973	63	0.175	-1.649	1.496	normally distributed

Negemo	0.972	63	0.169	-0.195	0.378	normally distributed
Anxiety	0.937	63	0.003	1.921	-0.124	not normally distributed
Anger	0.786	63	0	6.940	8.832	not normally distributed
Sadness	0.923	63	0.001	2.430	-0.239	not normally distributed
Social	0.948	63	0.01	-2.960	2.573	not normally distributed
Ppron	0.92	63	0.001	-3.417	5.435	not normally distributed
I	0.968	63	0.106	1.530	3.025	normally distributed

* This is a lower bound of the true significance.
a. Lilliefors Significance Correction

XXc- Kruskal-Wallis test

A Kruskal-Wallis test was undertaken to ascertain whether Well-being scores differed by partner module, e.g. Sheffield (Existential) compared with Sheffield (Conflict) compared with NSPC (Existential) and so on:

	PHQ change	WEMWBS change	GAD7 change	SWIB change	SWLS change	SAIL change
Chi-Square	12.639	8.893	21.603	6.706	15.944	8.566
df	8	8	8	7	8	8
Asymp. Sig.	0.125	0.351	0.006	0.46	0.043	0.38