

**Learning in a Facebook environment:
The writing is on the wall**

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Submitted in fulfilment of the requirements for the degree of Doctor of Philosophy in the
School of Education, College of Humanities, University of KwaZulu-Natal.

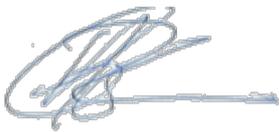
August 2014

Supervisor: Dr Wayne Hugo

Declaration

I, Craig Blewett, declare that

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2. This thesis has not been submitted for any degree or examination at any other university.
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Signature of supervisor

1 July 2014

Date

Dedication

This thesis is dedicated to God. I am humbled to hear you. Thank You...

For teaching me...

“He must become *greater*. I must become less.” (John 3:30)

“Great is the LORD and mighty in power, His understanding has no limit.” (Ps 147:5)

For showing me...

“There I will meet you...between the cherubim” (Ex 25:22)

“Which of these three do you think was a neighbour?” (Luke 10:36)

“Who among you fears the LORD and obeys the *word* of his servant? Let the one who *walks* in the dark, who has no light, trust in the name of the Lord and rely on their God.” (Isa 50:10)

“Better is *open* rebuke than *hidden* love” (Prov 27:5)

“Blessed is the person...*taught* out of the law” (Ps 94:12)

“The LORD is your *keeper*.” (Ps 121:5)

“It is not the one who *commends* himself who is approved, but the one the Lord *commends*.” (2Cor 10:18)

“To the Jews who had *believed* him, Jesus said, If you *hold* to my teaching...” (Jn 8:31)

Acknowledgements

“The most important reason for going from one place to another is to see what's in between, and (I) took great pleasure in doing just that.” (Norton Juster, adjusted)

This has been a journey like none other. Many times on this journey of learning and self-discovery, I have compared it to the mighty Comrades marathon; a 90km undertaking. The physical trauma that Comrades has put me through on so many occasions is akin to the mental trauma of this PhD journey. Yet as with the Comrades journey, this journey too has only been made possible because I did not journey alone. It is those who have been there when it really counted, “in between” that I thank from the bottom of my heart.

Firstly I thank God. This is not a glib, “did that” acknowledgement, but a confession that without Him this would not have been possible. I feel guilty putting my name to this thesis and not His, for as Einstein once famously said, “I want to know the thoughts of God – the rest are mere details.” These are not my thoughts but His, or at least my limited understanding of His thoughts. My biggest challenge has been to quiet myself and live the verse “He must become greater, and I must become less”, for in this place of “less” I would hear Him, a wonder that I am still in awe of. Thank you Lord!

Secondly I would like to thank my wife, Nicky. Wow! What commitment. This once again is not a glib thanks, but a heartfelt thanks for real support. Thank you for all the meals you cooked because I was busy. Thank you for moving out of our study so I could work in peace – something my distracted brain needed. Thank you for keeping me on the path and not letting me give up. Thank you for always believing in me. You are awesome! And of course a big thanks to my children, Sarah, Hannah and Joshua who also had to miss out on dad time during holidays, or avoid my study when I was working. I love you all.

Thirdly I would like to thank my supervisor Wayne. I enjoyed your style of supervising, and besides everything else, I have learned a lot about how I will supervise my students. I really enjoyed our conversations over lunch as we moved from place to place. Nothing better than chomping and cogitating to move things along! Your insight was always astounding to me.

Sometimes I returned perplexed that my neat ideas were disturbed; yet later I would see the brilliance of what you were saying. Sorry I was a bit slow at times. Your help and guidance has been pivotal to what I have achieved. My exciting insights into the “in between” were thanks to your brilliant guidance.

Fourthly I would like to thank the cohort. Wow, what an amazing model of helping people through their PhD. I remember distinctly the day that me, and some of my colleagues, decided to join – should we do this strange “cohort thing” or should we go the traditional route? As Robert Frost said. “Two roads diverged in a wood, and I, I took the one less travelled by, and that has made all the difference.” And what a difference it has been. I am certain that I would not have reached this stage if it had not been for the amazing support, pushing, nudging, and guidance of the cohort system. I thank Michael and Renuka for their selfless energy and amazing wisdom that they shared over the three years. I thank all my fellow cohortians who journeyed with me, reading my crazy mumblings and encouraging me as we rose and fell on this epic journey. It has been a privilege to journey with all of you.

Fifthly, I would like to thank my students for being such keen participants in this crazy undertaking. There is something wonderful about youth, and that is its excitement with change and comfort with chaos. The U-Spring, (University Spring) as you called it was an uprising that has changed my life and perceptions. It would not have been possible without all of you. You ppl r orsum! ntn lyk u :-) LOL

Abstract

This thesis explores how students learn in a Facebook learning environment. While e-learning environments offer many new opportunities to engage in learning, these new spaces are still largely unexplored and the purview of students more than lecturers. This is even more so the case when it comes to the recent emergence of Web 2.0 technologies and specifically Social Network Systems. These spaces, originally conceived for social agendas, are increasingly being applied to a variety of other uses. Recently the application of not-designed-for-learning environments to formal learning has begun to be explored. Most notable amongst these emergent spaces is Facebook, the largest single website, with over 1 billion users.

Facebook, unlike traditional e-learning environments, represents a departure both technologically and paradigmatically from what is normally used by universities. Technologically Facebook is not institutionally hosted or controlled. Paradigmatically it is built around conversations and not organisation and artefacts. Using an affordance theoretical framing based on the Latourian concept of actants, the actant action opportunities arising from the students' use of Facebook are explored. This analysis revealed the existence of a dynamic web of interacting affordances that push and pull against each other as students use the environment. This conversation-based approach to learning shifts learning from correct content to correcting content, from artefact to conversation, and from prospective to retrospective sense.

The key tenets of learning in a Facebook environment, as identified through the Latourian-based lens, exist in the notion of "between". In addition to the affordance tensions the students navigate, is the interplay between a learning discourse and a power discourse. The learning discourse itself is also framed by the interplay between vulnerability and validation. Students make themselves vulnerable through posts, and thereby open up opportunities to learn through the validation of subsequent comments. At the same time the learning discourse is interwoven with the power discourse, where decisions and actions are no longer autocratically or democratically enacted, but rather homeocratically through retrospective sanction of small evolving actions.

Using Facebook as a learning environment signals the emergence of a new theoretical perspective for learning, one that is founded, not on organised, deterministic, artefactual principles, but rather on networks of retrospective conversation-based learning. These new environments which challenge not only our conceptions of the place of learning, but also our paradigms of learning, operate in a realm of uncertainty, something that in most respects is foreign to university learning environments.

Abbreviations

CMC	Computer Mediated Communication
CMS	Content Management System
COE	Critical Online Ethnography
CRE	Critical Realist Ethnography
CSCL	Computer Supported Collaborative Learning
Fabspace	Fab Space Page
HCI	Human Computer Interaction
LMS	Learning Management System
PLE	Personal Learning Environment
RJ	Reflective Journal
UKZN	University of KwaZulu-Natal
VFG	Virtual Focus Group
VLE	Virtual Learning Environment

TABLE OF CONTENTS

Declaration.....	i
Dedication	ii
Acknowledgements	iii
Abstract.....	v
Abbreviations	vii
List of figures	xii
List of Tables.....	xv
1 Introduction.....	1
1.1 Background.....	1
1.2 Motivation	6
1.3 Purpose and Critical Questions	8
1.4 Setting the Scene.....	9
1.5 Structure.....	11
1.6 Conclusion	13
2 Literature Review.....	14
2.1 Introduction.....	14
2.2 Learning - Changing Meanings	15
2.3 Notions of Knowledge	16
2.4 Popper's Three Worlds Ontology	17
2.5 Learning as a Process	19
2.6 Classifying Learning Theories.....	20
2.7 Theory, Philosophy and Paradigm.....	21
2.7.1 Theory	21
2.7.2 Philosophy	22
2.7.3 Paradigm	22
2.8 Learning Paradigms	23
2.8.1 Behaviourism	25
2.8.2 Cognitivism	25
2.8.3 Constructivism	26
2.8.4 Connectivism	27
2.9 Connectivism	27
2.10 Meaning Making.....	30
2.11 Critique of Connectivism	31
2.12 Defining Learning	32
2.13 e-Learning.....	37
2.14 E-learning Environment Types.....	38
2.14.1 Type 1 - "Product" e-learning environments.....	40
2.14.2 Type 2 - "Place" e-learning environments	42
2.14.3 Type 3 - "People" e-learning environments.....	43
2.15 Future Directions.....	46
2.16 Social Network Systems.....	47
2.17 Facebook.....	49
2.18 Facebook Groups and Pages	52

2.19	Facebook research approaches	54
2.19.1	<i>Survey-based Facebook research</i>	54
2.19.2	<i>Qualitative-based Facebook research</i>	57
2.20	Conclusion	59
3	Affordance Theory	63
3.1	Introduction.....	63
3.2	Affordance Theory	64
3.3	History of Affordances	64
3.4	Reframing Affordances - The Three Movements.....	70
3.4.1	<i>Affordance Movement 1 - Object Affordances</i>	71
3.4.2	<i>Affordance Movement 2 - Subject Affordances</i>	72
3.4.3	<i>Affordance Movement 3 - Actant Affordances</i>	74
3.5	Mapping Technological Affordances to the Three Movements.....	79
3.6	Conclusion	81
4	Research Methodology	82
4.1	Introduction.....	82
4.2	Paradigmatic Orientation	82
4.3	The Research Methodology Assemblage.....	83
4.4	The Field of subjectivity	84
4.5	Critical Theory	84
4.6	Methodological Movements.....	85
4.7	Moving from philosophy to methodology	86
4.8	Ethnography	86
4.9	Critical Ethnography	87
4.10	Ethnographic Movements.....	88
4.11	Movement to Method.....	89
4.12	Matching Methods	90
4.13	Types of Online Ethnography.....	91
4.14	Issues of Critical Online Ethnography	93
4.14.1	<i>Finding the balance between observation and participation</i>	93
4.14.2	<i>Positionality and Trust</i>	94
4.14.3	<i>Authenticity</i>	95
4.14.4	<i>Anonymity</i>	96
4.14.5	<i>Ethics</i>	97
4.14.6	<i>Other</i>	98
4.15	Research Design	100
4.15.1	<i>Ethnographic Case Study approach</i>	100
4.15.2	<i>Participants</i>	102
4.15.3	<i>Ethnographic Environment</i>	103
4.15.4	<i>Data Sources</i>	104
4.15.5	<i>Facebook Page</i>	106
4.15.6	<i>Virtual Focus Groups</i>	109
4.15.7	<i>Reflective Journals</i>	113
4.16	Data Analysis	114
4.17	Conclusion	118
5	Facebook Affordances.....	120
5.1	Introduction.....	120
5.2	FabSpace Overview	121
5.3	Actant-Activity Affordance Framing	121
5.4	Accessibility	125

5.4.1	<i>Any-Time-Able</i>	126
5.4.2	<i>Multi-Place-Able</i>	128
5.4.3	<i>Multi-Medium-Able</i>	129
5.5	Connection.....	131
5.5.1	<i>Conceal-able</i>	132
5.5.2	<i>Confirm-able</i>	140
5.6	Communication	144
5.6.1	<i>Expose-able</i>	145
5.6.2	<i>Express-able</i>	152
5.7	Control.....	164
5.7.1	<i>Conform-able and Conduct-able</i>	166
5.8	Construction	178
5.8.1	<i>Extend-able</i>	179
5.8.2	<i>Expand-able</i>	182
5.9	Actant-Activity Affordance Network	185
5.10	Comparison to Literature.....	188
5.11	Conclusion	193
6	Learning in Facebook	196
6.1	Introduction.....	196
6.2	Opening and Solidifying.....	196
6.3	Opening in Learning.....	198
6.3.1	<i>Posting/Creating</i>	198
6.3.2	<i>Asking</i>	207
6.4	Solidifying in Learning.....	220
6.4.1	<i>Commenting</i>	221
6.4.2	<i>Dialogic and Dialectic of Learning</i>	224
6.4.3	<i>Authentic Content</i>	228
6.4.4	<i>Conversation Longevity</i>	233
6.5	Conclusion	235
7	Learning and Power	239
7.1	Introduction.....	239
7.2	The Learning Discourse.....	240
7.2.1	<i>Vulnerability in Learning</i>	240
7.2.2	<i>Validation in Learning</i>	250
7.2.3	<i>Vulnerability and Validation</i>	255
7.3	Power Discourse.....	258
7.3.1	<i>Control</i>	259
7.3.2	<i>Decision Structure</i>	262
7.3.3	<i>Alternative decision model</i>	265
7.3.4	<i>Homeocracy</i>	268
7.4	Conclusion	273
8	Reflexion	275
8.1	Introduction.....	275
8.2	Methodological tensions	276
8.3	Personal tensions	278
8.4	Representation tension.....	282
8.5	Conclusion	284
9	Conclusion	286
9.1	Introduction.....	286

9.2	Learning about learning	287
9.3	Limitations	291
9.4	Conclusion	292
10	Epilogue – Between to Beyond.....	294
10.1	Introduction	294
10.2	The edge of chaos	295
10.3	Paradox of learning.....	298
10.4	Chaotic Relativism.....	300
10.5	Future - Connecting beyond the dots.....	301
	References.....	305
	Appendix A. Ethical Clearance Approval.....	319
	Appendix B. CMC Module Guide	320
	Appendix C. CMC Assessment	328
	Appendix D. Initial List of Affordances from Focus Group.....	333
	Appendix E. Code Affordance Consolidation	334
	Appendix F. Change of Title	337

List of figures

	Page
Figure 1: Edmodo comment	1
Figure 2: Edmodo comment	2
Figure 3: Edmodo comment	2
Figure 4: Edmodo comment	2
Figure 5: Edmodo comment	2
Figure 6: Moodle Learning Management System	4
Figure 7: Facebook Page	5
Figure 8: Philosophy and Learning Theory	22
Figure 9: Conceptual view of a Learning Paradigm	23
Figure 10: Modes of Learning (Williams, Karousou & Mackness, 2011, p. 41)	33
Figure 11: Types of e-learning environments	40
Figure 12: Web 1.0 and Web 2.0 comparison (O'Reilly, 2007, p. 18)	44
Figure 14: Facebook growth (Foster, 2012)	49
Figure 15: Coke bottle affordances (Uys, 1984)	65
Figure 16: Gibson-Norman Affordance Comparison (McGrenere & Ho, 2000)	69
Figure 17: Affordance Categorisation (Gaver, 1991)	70
Figure 18: Range of Actant Affordances	79
Figure 20: Placing methodology at the centre (Morgan, 2007, p. 69)	90
Figure 21: Online ethnography mapping	91
Figure 22: Fabspace Facebook Page	104
Figure 23: Multiple Data Sources	106
Figure 24: Post and Comment	107
Figure 25: Post/Comment Ratio in Fabspace	108
Figure 26: Neat Chat chatroom application	110
Figure 27: Data Analysis and Interpretation (Samuel, 2009, p. 13)	115
Figure 28: Grounded analysis approach	116
Figure 29: Actant-Activity Affordance framing	123

Figure 30: Actant-Activity Affordance framing assemblage	125
Figure 31: Posts across times of day.....	126
Figure 32: Connection Affordance.....	131
Figure 33: Facebook signup page	132
Figure 34: Assigning Admin privileges	133
Figure 35: Changing "Posting As" Name.....	133
Figure 36: Comparison of Named and Anonymous Posts	134
Figure 37: Communication Affordance	144
Figure 38: Facebook Spaces	145
Figure 39: Flow of information between Facebook spaces.....	146
Figure 40: Facebook Page Post Invitation	152
Figure 41: Like, Comment or Share	153
Figure 42: Facebook Comment Invitation	153
Figure 43: Content Topics from CMC Module Guide.....	154
Figure 44: Content and Non-Content Posts over time	155
Figure 45: Top Terms mentioned in Conversations (from skyttle.com)	156
Figure 46: Learning Activity 2	158
Figure 47: Fabspace Sentiment Analysis (from skyttle.com).....	162
Figure 48: Control Affordance	165
Figure 49: Construction Affordance	178
Figure 50: Apps on Fabspace Page	179
Figure 51: Actant-Activity Affordance Network	187
Figure 52: Facebook Page Post Invitation	199
Figure 53: Bloom's Revised Taxonomy (Churches, 2008).....	201
Figure 54: Excerpt from Topic 1 - Activity 1.....	201
Figure 55: Forum Organisation.....	210
Figure 56: Active Conversation Analysis.....	223
Figure 57: Analysis of Active and InActive Conversations	229
Figure 58: Top Terms mentioned in Conversations (from skyttle.com)	232
Figure 59: Gmail Beta Label.....	268

Figure 58: Post-Comment Intereactivity Categories	272
Figure 60: Future School, France 1901, (Wikipedia, 2013a).....	295

List of Tables

Table 1: Learning Paradigms.....	24
Table 2: Indicators of shifts in approaches to learning environments (Brown, 2008, p. 222)	31
Table 3: 7-Dimension comparison of learning approaches	34
Table 4: Affordance Movement Dimensions	71
Table 5: Affordance Movement 1.....	72
Table 6: Object affordance characteristics	72
Table 7: Affordance Movement 2.....	74
Table 8: Subject affordance characteristics.....	74
Table 9: Affordance Movement 3.....	78
Table 10: Actant affordance characteristics	78
Table 11: Comparison of Conole and McLoughlin & Lee's affordances	191
Table 12: Comparison of affordances to literature	192
Table 13: Conversation lifespan	234
Table 14: Vulnerability-Validation interplay for Activity 1	256

1 Introduction

“Call me Craig. Some years ago – never mind how long precisely – I thought I would set sail upon the sea of learning in search of a place where the answer to a troubling question may be found. This is my journey, so far.” (Moby Dick, alt.)

1.1 Background

For over 10 years I have explored various online learning environments with my students. These have ranged from institutionally hosted environments such as WebCT to environments hosted on our own departmental servers, such as Elgg, to environments housed in the cloud such as Ning. With each experience I learned something about the way students reacted to the environment, the issues of hosting or not hosting our own environment, and how learning appeared to take place in the environment. However in 2010 I came across an environment called Edmodo (www.edmodo.com). While similar to other cloud-hosted environments, something unique arose from the student comments when using it - the students seemed to really engage within the environment, unlike any of the others. I was interested and began to explore this space in more detail, wondering what it was that was so interesting and seemingly so authentic to the students. What I found was almost too obvious, that I missed it for a while. Below are some of the posts the students made in Edmodo.

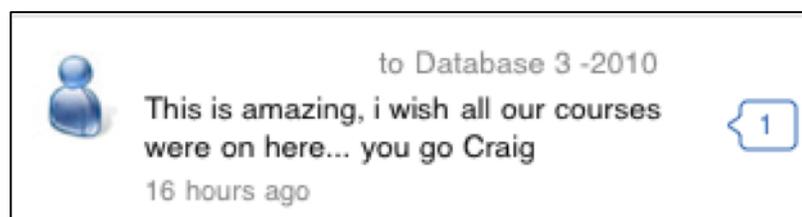


Figure 1: Edmodo comment



Database 3 -2010 - Note

Really Cool 'Facebook' feel to this interactive system...
Makes one keen to study by really interacting and participating in the discussions posted here...
When studying is fun, it makes learning "AWESOME", as per the poll votes!
Hehe...Cheers for nw (")

2 hours ago | Reply | Public | Tag ▾

Figure 2: Edmodo comment



, this site is cool eh!

Lol! Now, thrs anada "Facebook" (so to speak) to explore.
Ehm, thought I was gna make da successor to Facebook in 2020,
but hey, seems lyk EDMODO beat me ...
Lmao...See ya around CYNTHYA!!!!!!!!!!!!!!!!!!!!

Figure 3: Edmodo comment

to **Database 3 -2010 - Note**

is really feeling for a -- WAIT no, this isn't Facebook! O_o

Yesterday | Reply | Public | Tag ▾

Figure 4: Edmodo comment



Dude...r u using the mobile app?...itz
jz like facebook
(^.^)
3 hours ago

Figure 5: Edmodo comment

“I don’t know who discovered water, but I’m pretty sure it wasn’t a fish” (Marshall McLuhan). This saying became true for me as I spent time exploring Edmodo and wondering about its design and use. Yet like a fish immersed in the waters of online learning, I did not truly hear what the students were saying. It was not Edmodo that they were excited about, but the fact that it was so similar to Facebook. And then it dawned on me - could I have been missing one of the biggest learning environments around, simply because it is not called a “learning environment”? For these students, it appeared that Facebook had become the standard against which everything was compared, and so began my journey to consider something that seemed untenable, and almost an oxymoron - a Facebook learning environment.

My lecturing involvement is mainly centred on 3rd and 4th year students in the discipline of Information Technology at the University of KwaZulu-Natal (UKZN) in South Africa. The University provides an official online Learning Management System called Moodle. While I was using Edmodo for most of my courses, and was starting to explore Facebook as a learning environment, I did on occasion also make use of Moodle. Arising out of this juxtapositioning of online learning environments was a realisation that two distinct paradigms were being invoked. There seemed to be a fundamentally different approach to how the institutionally supported system (Moodle) was arranged as compared to Edmodo and Facebook. The screenshot below (Figure 6) is taken from Moodle’s landing page for one of my courses.

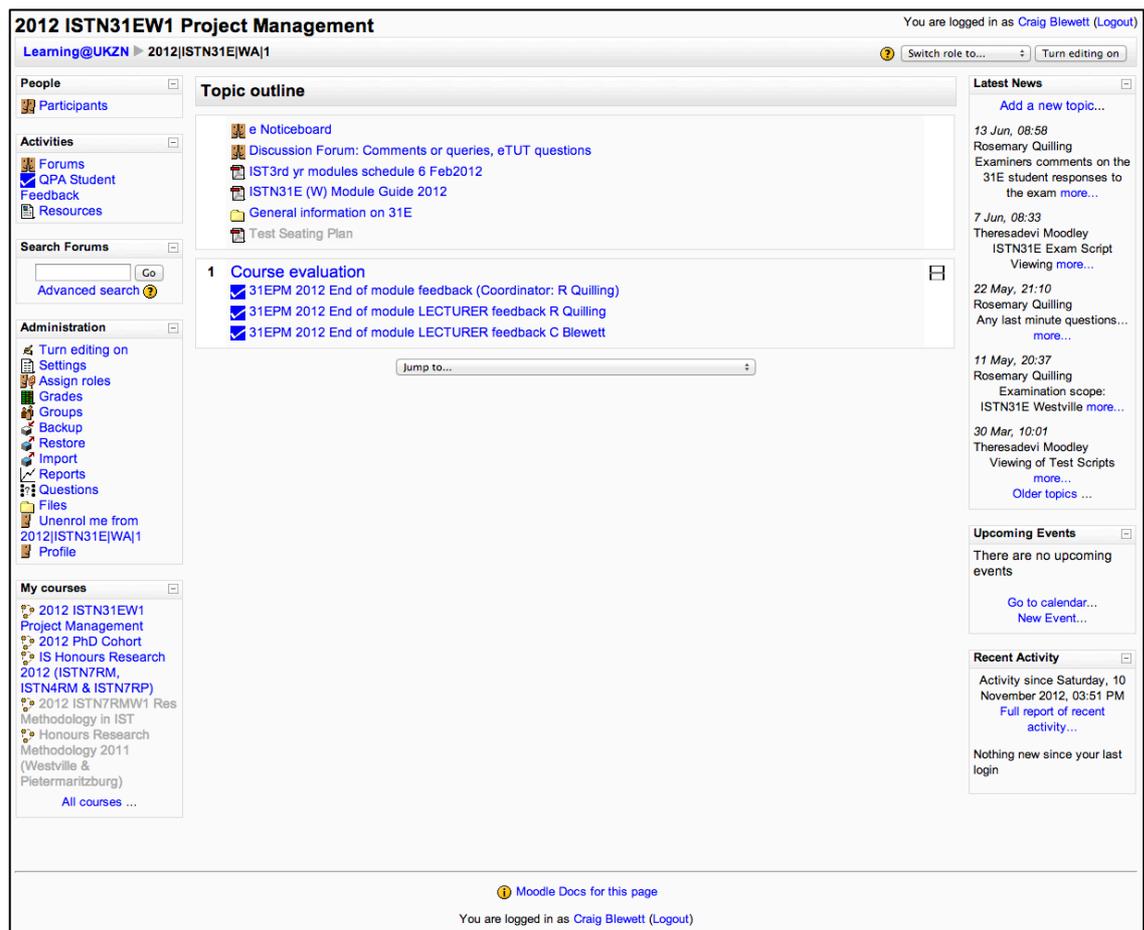


Figure 6: Moodle Learning Management System

What takes “centre stage” is structure and organisation, both in terms of how Moodle is laid out in various sections (People, Activities, Administration, etc.) and the menu driven approach, where each item is clickable to reveal the next section. Obviously by foregrounding structure, the actual content is more concealed. Some information about the content of discussions is displayed on the right of the screen, however to get access to conversation content the user must navigate the links through the Forums. The path to reach conversation content consists of 5 steps, e.g.

Learning@UKZN / ► 2012|ISTN31E|WA|1 / ► Forums / ► Discussion Forum: Comments or queries, eTUT questions / ► question 1 in past exam

By contrast conversation takes “centre stage” in a Facebook environment. The content is arranged around the conversation streams and is immediately visible without navigating through menus. The path to reach the conversation content in Facebook is only one layer deep. After typing www.facebook.com/fabspace (the Facebook learning page) the student is presented with the conversation content as depicted below (Figure 7).



Figure 7: Facebook Page

In addition to foregrounding conversation, there is also the inclusion of images and an obvious indication of the activity surrounding a conversation, as indicated by the Likes, Comments and Shares. However, unlike Moodle, there is no obvious structuring of content or even a place to store content. There is no obvious structure to the page or indication of where

a user would go to get to specific content such as course schedules or announcements, etc. Structure, and spaces to arrange and store artefactual content are almost non-existent in this environment.

There appears to be a distinct design difference with Facebook being designed around discussion, and Moodle being designed around artefacts. Both my students' responses on Edmodo and the different approaches of the two environments raised some questions, such as: Why do Moodle, and many other Learning Management Systems, foreground content over conversation and organisation over interaction? Is it possible, or desirable to combine an organisation-based and conversation-based approach? And more significantly, how would students learn in a conversation-based environment such as Facebook, when this is paradigmatically different to what the University supports?

It was these experiences, amongst others, that set me forth on the journey to explore student learning within a Facebook environment.

1.2 Motivation

“More and more instructors are beginning to abandon traditional approaches to instruction, which merely transfer knowledge from faculty to students, for cutting-edge strategies, which allow students to construct their own learning” (Heider, Laverick, & Bennett, 2009, p. 104). However this very statement presupposes firstly that traditional approaches are inferior to newer approaches and secondly that online, cutting-edge approaches will invoke different pedagogies. Rather what needs to be considered is what are the affordances of these new learning environments and how do students respond to these affordances?

However, at the moment “most concepts of computer-supported learning are still based on a tool-paradigm...(where) technology is seen as a medium for delivering precast instructional content faster, cheaper, better managed and better targeted” (Lindner, 2006, p. 41). While there is a move by many universities to provide online learning environments, as Lindner (2006) argues, these environments are often used simply as channels to deliver offline content more efficiently, rather than to explore new approaches to learning.

If online learning is going to be explored, then simply replicating offline practices in online environments is likely to mask the opportunities and approaches within online learning. As Lindner (2006) says, there is an irony in this as “the term “e-learning” had been coined in 1998, it initially had stood itself for an explicit counterdraft to the static, restricted and overly formalised ‘computer-based training’. But during the e-learning bubble it has widely just been transformed to something like Web-based Training” (p. 41).

It appears that there is a paradoxical situation in higher education as Warschauer (2007) argues in his paper entitled, “The paradoxical future of digital learning”. On the one hand universities are lauding the advent of new technologies to support innovative learning (Williams, Karousou, & Mackness, 2011), yet on the other hand they are simply delivering precast offline content through online environments (Lindner, 2006). This raises the question as to why it is when education technology advocates are lauding “the advent of new technologies (that) will radically transform what people learn, how they learn, and where they learn” (Warschauer, 2007, p. 41) and students in their non-academic lives are immersed in online spaces (McCarthy, 2013), we appear to be making little progress in our use of e-learning environments in higher education?

Possibly part of the issue lies in a failure to yet understand how learning takes place in online spaces, and what pedagogies are best supported. As Duncan (2010) points out, “One of the most pertinent questions for today’s educational climate is that of how learning and literacy are fostered (or hampered) by the use of digital, electronic media” (p. 21). Just like the affordances of the book or the chalkboard brought with them interesting opportunities to explore learning, so too do the raft of new affordances arising from online learning environments. There has been an explosion of Web 2.0 technologies “accompanied by a raft of affordances that expand how we teach, communicate, learn and create knowledge” (McLoughlin & Lee, 2007, p. 664), however there “is relatively little theoretical and empirical attention paid by social researchers to the form and nature of that learning in general” (Linxen, Gröhbiel, & Pimmer, 2012, p. 3).

In attempting to answer this “most pertinent question”, of how learning takes place in online environments, it seems untenable to ignore “the elephant in the room” - Facebook. “I have selected Facebook because it is indubitably the most proliferant, expansive, and penetrating iteration of the digital cloud. As I write, Facebook has over 500 million active users...” (Monea, 2012, p. 5). Yet, as I write, just a year after Monea, Facebook has, as of September 30, 2013, over 1 billion active users (Facebook, 2013d). If for Monea (2012) Facebook was “indubitably the most proliferant, expansive, and penetrating iteration of the digital cloud” (p. 5), how much more so is it now, with more than double the number of active users? And so it seems that a journey to explore online learning, especially where my pre-conceived, possibly “transactional” and control-based notions of learning dominate, must needs consider the expanse of Facebook, and how learning in this emergent environment might take place.

Referring to Facebook, Lim (2010) says that “any technology that is able to captivate so many students for so much time not only carries implications for how those students view the world but also offers an opportunity for educators to understand the elements of social networking that students find so compelling and to incorporate those elements into teaching and learning” (p. 1). The next section will now present the research focus and critical questions guiding this research.

1.3 Purpose and Critical Questions

For a long time questions such as Noss and Pachler’s (1999) have challenged researchers - “What kinds of pedagogy are appropriate to using this technology and, more fundamentally, how does this technology change the epistemologies...?” (p. 196). This is not due to a lack of research, but potentially due to the difficulty associated with both exploring new technological spaces and suspending preconceived epistemological perspectives.

The purpose of this study is to explore student learning within a Facebook learning environment. The research will seek to answer the research question - What does students’ use of a Facebook learning environment reveal about learning?

This question will be answered by exploring the following three critical questions (CQ):

CQ1 - What are the affordances of a Facebook learning environment?

CQ2 - How do students learn in a Facebook learning environment?

CQ3 - Why do students learn in a Facebook learning environment in the way they do?

There are three key theoretical perspectives guiding this research, the first are the philosophies and definitions of learning as theorised in connectivist learning theory, the second is the underlying philosophical paradigm, critical theory, and the third is the theoretical lens of affordance theory, which will be used as the point of departure for this research. The implications of these guiding theoretical perspectives will be briefly outlined in the next section.

1.4 Setting the Scene

As this research attempts to answer critical questions relating to learning, it is imperative that the notion of learning, both in terms of its underlying epistemological and ontological perspectives, and in terms of an operationalised definition is clarified. While there is “no definition of learning that is universally accepted” (Schunk, 1996, p. 3) new theories are constantly developing, particularly in response to the impact of technology on learning. Connectivism purports to be a “learning theory for the digital age” (Siemens, 2004) and foregrounds the role of networked engagement in meaning making as the principle tenet of learning. As such, this theorisation of learning will define both the use of the term learning and the implementation of a social media based network learning environment.

The second theoretical perspective is the adopted critical theory paradigm. A study of this nature can be undertaken in a number of ways, ranging from objective positivist positions to more subjective interpretivist positions. However, what is key is adopting a philosophical perspective that not only resonates with my worldviews, and thereby ensures researcher-research authenticity, but also one that resonates with the topic.

Conducting research in an emergent learning environment like Facebook has inherent within the phenomenon itself, issues of change and power. “The formation of power and the

formation of knowledge compose an indissoluble unity” (Habermas (1987), p. 272). As such this research will be adopting a critical perspective, which draws from critical theory’s transformative agenda. Critical theory adopts a critical realist ontology with a subjectivist epistemology using a dialogic, transformative methodology in order to “‘transform’ people by revealing how ‘oppressed’ they are in their earlier ‘false consciousness’ and by revealing ‘truth’” (Larson, 1993, p. 288).

Adopting a critical paradigm differentiates this research from other “output” based research. The tension between process vs. output research is often framed by positivist vs. non-positivist paradigms, where outcomes and generalisability are compared to process and specificity. This outcome vs. process debate extends the issue of the hegemonic influence of the positivist designs and theories. This is well illustrated in the “debate” in the *Journal of Distance Education* (see Akyol, et al., 2009; Rourke & Kanuka, 2009) on the appropriateness of the Community of Inquiry framework for understanding learning. Besides various issues of methodology, Akyol, et al. (2009) are at pains to point out that the model considers the “issue of learning processes (not) learning outcomes” (p. 131). They contend that attempting to measure outcomes “is a challenging and time consuming task in itself, (and) it also does little to inform the teaching and learning process” (Akyol, et al., 2009, p. 131). Adopting a non-positivist, critical-based approach signals my intention to explore the process of learning and not learning outputs, nor, as will be discussed in more detail later (Chapter 2), will comparative analyses between learning environments be discussed. This paradigm also resonates with the Connectivist learning theory, which emphasises engagement over more positivist-based outcomes.

Critical theory’s transformative agenda also resonates with the third theoretical perspective adopted in this research, and that is the use of affordance theory as the primary theoretical lens (Volkoff & Strong, 2013). The essence of critical theory revolves around change (action) as indicated by Thomas (2003), “The act of critique implies that, by thinking about and then acting upon the world, we are able to change our subjective interpretations and objective conditions” (p. 47). Affordances, according to Gibson’s (1982) original conception of them, are action opportunities that exist in the environment. “The affordances of the environment are what it offers the animal, what it provides or furnishes, either good or ill” (J. J. Gibson,

1979, p. 127). Adopting an affordance-based perspective fundamentally alters the way in which the research is viewed from one based on features to one based on action opportunities.

“Facebook features are designed to trigger social behaviour, not create it...Facebook and Twitter aren’t social software systems, they are systems that afford certain social behaviour” (Appleseed, 2013 para. 1). As already mentioned, one of the key challenges of undertaking an exploration of learning in a new learning environment is the suspension of epistemological and pedagogical perspectives. Observing how learning takes place in a physical and social environment, such as Facebook, requires a lens that allows more than a simple feature-based view of the environment, but rather one that provides an insight into determining how the environment affords learning. Affordances focus on action opportunities, rather than features, which typically reflect designer intentions, and therefore it provides a useful perspective of how learning takes place in Facebook (Parchoma, 2013). In addition affordances are not concerned with “judging” one environment above another, but rather exploring the action opportunities that an environment offers to the students.

As such, this research will make use of a connectivist learning perspective (see more in Chapter 2), a critical paradigm (see more in Chapter 4) and an affordance theory based theoretical lens (see more in Chapter 3). The first critical question uses affordances as the point of entry into the research as it explores what the affordances of a Facebook learning environment are. This will then lead to the second critical question that will look more specifically at what these affordances reveal about how students learn in a Facebook learning environment. Finally, the third critical question will attempt to understand why students learn in the way they do in a Facebook learning environment.

1.5 Structure

The structure of the thesis is as follows. The next chapter, Chapter 2, presents the Literature Review that outlines the development of educational theory and develops a technology appropriate definition of learning based on connectivist theory. The chapter presents a framework for understanding the generations of e-learning environments and then concludes

by discussing emerging research around the use of Web 2.0 technologies, and specifically Facebook, as a learning environment.

Chapter 3 presents a discussion of the guiding theoretical framework, affordance theory. The chapter begins by outlining the history of affordance theory and then presents a reframing of affordance theory over three significant movements. Finally the chapter concludes with an emergent understanding and application of affordance theory that guides the remainder of the research.

Chapter 4 discusses the overarching research methodology. The chapter begins by discussing the three major elements of the research methodology assemblage, *viz.* the supporting critical theory orientation, the critical ethnographic methodology, and the implemented critical online ethnographic method. The chapter then discusses the details of the research design before concluding with a discussion of the data analysis approach.

Chapter 5 is the first of the three analysis chapters addressing the critical questions. This chapter begins the analysis by looking at the affordances that arise from the Facebook learning environment within an Actant-Activity Affordance framing. The chapter discusses the various affordances that arise from how the students interact in and with the environment. Finally the chapter discusses the movements and tensions between these affordances.

Chapter 6 considers the second critical question as it focuses on how learning takes place in the Facebook environment, in response to the affordances. The chapter discusses the two aspects of opening in learning and solidifying in learning and how these interact in the students' learning experience.

Chapter 7 is the last of the analysis chapters and seeks to explore why students learn in the way they do within Facebook. The chapter presents the two key discourses at work, *viz.* the learning discourse and the power discourse. The learning discourse explores how the issues of vulnerability and validation interact during student learning. The power discourse explores control and power structures and how new decision making models are being implemented in online spaces.

Chapter 8 then turns the perspective around by reconsidering the research findings through a personal reflexion. This chapter explores the tensions that arose during the research process and how the student learning experience was mirrored in my own learning journey.

Chapter 9, the Conclusion, reviews the key findings and limitations of the research.

Finally Chapter 10, the Epilogue, presents a discussion of what these findings may signal about future directions in learning. The chapter presents a discussion of a chaos-based theory of learning and how future directions of learning may be informed by an exploration of non-deterministic approaches to learning.

1.6 Conclusion

This introduction is neither the beginning nor the end, for me, as it may be neither the beginning nor the end for the reader. In a sense it is a plateau from where I look back to what has come before and look forward to what is coming next. This is metaphorically not dissimilar to my learning journey, and the exploration of learning in a Facebook environment. It marks neither the beginning, nor the end, but a plateau on the journey to explore, to understand, and hopefully signal new opportunities for learning.

“This is my journey, so far.”

2 Literature Review

“Standing on the shoulders of giants” (Google Scholar)

2.1 Introduction

This research seeks to explore how learning takes place in a Facebook environment. This invokes two major themes, the first is learning and the second is the use of online learning environments. In order to explore the literature related to this topic the following approach will be taken.

Firstly it is necessary to navigate the shifting, and sometimes turbid theories about what learning is and how it takes place. As such the first section will consider how understandings and definitions of learning have changed. The discussion will focus specifically on Connectivism as a proposed “learning theory for the digital age” (Siemens, 2004) and will develop a definition of learning, drawing from this paradigm, that is consistent with both the applied theoretical frame (Chapter 3) and the social media based implementation (Chapter 4).

The second part of this chapter will focus specifically on e-learning environments and particularly how e-learning environments have evolved both to reflect educational theory and in response to technological developments. This section will outline the development of e-learning environments resulting in the current in flux situation of e-learning, and current new directions within e-learning environments. The final sections will then focus on Social Network Systems as the major technological driver of e-learning and specifically research directions that have been currently undertaken in Facebook.

2.2 Learning - Changing Meanings

The term “learning” is used a variety of ways nowadays from “learning to do multiplication” to “learning that a friend is sick” to “learning to be patient with my children”. As Bereiter & Scardamalia (1996) argue, this wide range of ways in which we use the term “learning” demonstrates a need to rethink what we deem to be learning. In fact as Bereiter & Scardamalia (1996) point out, the term has become even broader now as it refers to learning corporations, or learning societies, or as Siemens (2005) suggests, learning in non-human appliances.

This broad usage of the term learning not only brings with it a potential confusion as to what is meant by “learning” but it also potentially masks underlying philosophical perspectives. To this end it is important to consider how the word has changed and what implications this changing meaning has both on theories of learning and research on learning.

Examining the etymological roots of the verb “learn” provides a useful point of departure for the consideration of how learning has changed both in conceptualisation and practice. The verb “learn” has its etymological roots in the Old English word “*leornian*” which meant “to get knowledge, be cultivated, study, read, think about” and the past participle adjective “learned” meaning “having knowledge gained by study” (Harper, 2014). This original definition of the term illustrates two key things; firstly the conflation of knowledge and learning, whereby acquiring knowledge and learning are synonymous, and secondly the obvious indicator of learning being the outcome of “knowledge gained”.

This early outcome view of learning is represented in most of the early theories of learning that viewed learning as a change in behaviour (Smith, 2003). Examples of this Behaviourist perspective are Thorndike’s Connectionism, Guthrie’s Contiguity Theory, Skinner’s Operant Conditioning Theory, and Estes’ Stimulus Sampling Theory. Learning was seen as an outcome or the product of some process. Key to this product perspective of learning is an observable change in skills or knowledge.

However, assumed in the original definition, and within the Behaviourist paradigm, is that knowledge and learning are the same thing. It is this issue that needs to be examined in more detail.

2.3 Notions of Knowledge

Knowledge in itself is a complex concept, where even the different types of knowledge can blur our understanding. For example “I know that a giraffe is a mammal” as compared to “I know how to write a computer program”. Philosophy refers to these two types of knowledge as “know-what” and “know-how”, while cognitive science refers to them as declarative and procedural knowledge (Broberg, 2000).

However these concepts of knowledge become even more important when considered in terms of education. The concept, as contained in the original meaning of learning and subsequent theories, is that knowledge is the outcome of learning. This was, and still is in most cases, the visible measure of learning in schools and universities. Knowledge is often perceived, at least by “ordinary people”, to be something that is quantifiable and absolute. This positivist, outcome-view of knowledge, focuses on know-what and know-how knowledge with little space for know-why. Unsurprisingly this gives rise to a common critique of education that students know the material but lack the ability to critically engage with content or items beyond the periphery of their knowledge base.

Bereiter & Scardamalia (1996) refer to this “ordinary people’s” view as “folk psychology”. They argue that much of our misconceptions and confusion with regard to knowledge and learning are as a result of “folk psychology”. Folk psychology is the set of subsumed beliefs people acquire based on where they live and their experiences growing up. This folk psychology leads many people, especially in the Western world, to see the mind as a container (Lakoff and Johnson, 1980). “Some objects have only a fleeting presence in the mind, whereas others reside there more or less permanently. Learning is any process by which these more enduring objects get into the mind” (Bereiter & Scardamalia, 1996, p. 486).

The implications of the mind-as-a-container metaphor, and these positivist, object views of knowledge are firstly, that it is difficult to conceptualise things such as institutional knowledge or intuition, creativity, etc., and secondly, memory is the storage and retrieval of these knowledge objects and so mental abilities are all related to specific object manipulation such as classification, sequencing, inferring etc.

Bereiter & Scardamalia (1996) give the example of “learning one’s way around” as an example of learning that cannot be reduced to specifiable objects. Whether this is a student who learns their way around an online learning space, or a taxi driver who learns his way around a city. Even though this may be spoken of as having a “mental map”, in an attempt to create an object in the mental container, this however does not adequately explain this knowledge. The student or taxi driver does not consult a map, mental or otherwise, in order to successfully navigate the area.

What is apparent is that the “ordinary” or “folk psychology” views of knowledge and learning are overly simplistic and mask the complexity of knowledge and learning. This has led to various theories that further try and explain knowledge.

2.4 Popper’s Three Worlds Ontology

While there are many perspectives on knowledge ontologies (e.g. Firestone & McElroy’s (2005) unified theory of knowledge, Hall, Nousala, & Kilpatrick’s (2009) autopoiesis and cognition view) one of the most useful ontological theories is Popper’s Three World view of reality (Popper, Eccles, John, & Carew, 1977).

While folk theory makes no distinction between knowledge building and learning, Popper’s three-worlds model provides a basis for this distinction. Popper presented a three worlds view of reality where World 1 is the world of physical objects and events; the world that we exist in. World 2 is the world of mental objects and events; the world of our personal perceptions and experiences. Polanyi’s (1997) tacit-explicit knowledge distinction is based on this world. World 3 is knowledge, or the objects of thoughts such as theories, books, art, models, etc.

World 2 activities may produce knowledge, however the artefacts of this knowledge are stored in World 3. Eccles & Popper (2014) later expanded on this by suggesting that World 2 consists of several levels, or a spectrum of knowledge, ranging from our “outer sense” (light, colour, sound, etc.), through our “inner sense” (thoughts, feelings, memories, etc.) to our “pure ego” (the self - self soul and spirit).

This ontological layering is important as it breaks the subsumed conflation of knowledge and learning implicit in the original positivist definitions and theories of learning. “Knowledge surrounds us (world 1), becomes a part of us (world 2), and is then stored in historical contents and contexts by us (world 3 artifacts)” (Clark, 2014). Or as Bereiter (1996) puts it, “knowledge building is activity directed outward toward World 3; learning is activity directed inward toward changes in World 2, one's own mental abilities and dispositions” (p. 500).

However the problem in modern learning, arising out of positivist outcome-focused theories and pedagogies, is that students are neither focused on world 3 knowledge or world 2 learning, but on the instantiated world 1 representation of knowledge. Bereiter (1996) explains the difference between how a scholar or scientist views knowledge and learning compared to how students view it.

If we were to observe a scientist at work and ask them what they are doing, we would not expect them to reply that they are learning, *i.e.*, engaged in a world 2 process. They would most likely say that they are working on some experiment in order to prove something or solve something. Learning occurs, of course, but the actual work is knowledge production. If however we were to observe a student at work and ask them what they are doing we would most likely get a reply that they are completing an assignment or writing an essay. Learning occurs, of course, but the actual work is artefact production. “What distinguishes students from practicing scholars and scientists is not that they are focused on learning but rather that they are not focused on either learning or knowledge building” (Bereiter, 1996, p. 497). So while scholars and scientists are focused on knowledge building with learning as an aside, students are focused on artefact production - such as assignment completion, with both learning and knowledge as asides.

2.5 Learning as a Process

As discussed above knowledge is more complex and nuanced than the original positivist, object perspective, where the container-mind holds and manipulates these objects, or where knowledge and learning are considered to be the same. While early theories pursued this view it soon became apparent that simply considering learning as being represented as the product of knowledge acquired, did not give insight into the *process* by which this knowledge was acquired.

Explanations of this process are referred to as learning theories (Merriam, Caffarella, & Baumgartner, 2012) and according to Kearsley's (2014) Theory In Practice (TIP) database, have given rise to over 50 theories of learning in the last century. Examples include Cognitive Load Theory (J. Sweller), Gestalt Theory (M. Wertheimer), Multiple Intelligences (Howard Gardner), Social Learning Theory (A. Bandura), Situated Learning (J. Lave), Social Development (L. Vygotsky), etc. This multiplicity of theories depict, in some cases, vastly different perspectives and understandings both of how learning takes place and what learning is. While this may be deemed a problem it is also a challenge to researchers to not only continue theorising on learning, but to be open to a multiplicity of perspectives and definitions (Broberg, 2000).

However most of these theories consider learning as both a product and process (Tharp, Gould, & Potter, 2009). This is seen in definitions of learning such as Driscoll's (2000), where learning is "a persisting change in human performance or performance potential...as a direct result of the learner's experience and interaction with the world". There are two key aspects to this definition of learning. The first is the outcome, defined by a change in performance; the second is the process of knowledge/skill acquisition.

Lachman (1997) in his paper "Learning is a process: Toward an improved definition of learning" argues that "learning is the process by which a relatively stable modification in stimulus-response relations is developed as a consequence of functional environmental interaction via the senses" (p. 477). Even this theory, based on underlying behaviourist perspectives (see below) includes elements of outcome, defined by stimulus-response relationships, and process, defined by environmental interaction.

However, as conceptions of knowledge and learning, were born in what might be termed a Poppler's conflated worlds 2 & 3, where knowledge and learning are the same, it is not surprising that knowledge, or quantifiable outcomes, have become the benchmark for determining learning, even within more process-oriented theories. Twigg (1994) argues that output-based pedagogical models remain the predominant model of most universities and that "viewing a college education as a mastery of a body of knowledge...is becoming outmoded."

So while it is easier to identify the assumptions of the original conceptions of learning, it is not as easy to identify these assumptions in ongoing developments of learning. To this end various scholars have attempted to classify learning theories into paradigmatic orientations in an effort to understand trends and possible future directions in educational theory.

2.6 Classifying Learning Theories

There are multiple ways of classifying learning theories. For example, Prawat & Floden (1994) classify learning theories into three views based on three (of the four) epistemological perspectives of Pepper's (1942) World Hypotheses; mechanism, contextualism, and organicism (not to be confused with Poppler's three worlds). Wood (1995) takes a different approach classifying learning theories based on the application of learning theory to technology, *viz.* Skinner and neo-behaviourism, Piaget and constructivism, and Vygotsky and social constructivism. Conole (2010) takes another approach, classifying learning theories into three groups based on the psychological perspectives underpinning educational design, *viz.* Associative, Cognitive, and Situative.

While, as Smith (2003) says, these classifications are somewhat arbitrary, and are an attempt to retrofit structure to theories, these classifications nonetheless provide potentially useful insights into learning theories' underlying assumptions and potential trends. However, while the above classifications, and others, provide useful insights, the discussion in this chapter has been based on underlying ontological and epistemological assumptions embedded within theories. As Schuh & Barab (2008) say, learning theories have their "roots in philosophy...(where) perspectives differ with respect to their ontological and epistemological

assumptions” (p.69). Epistemological assumptions, whether tacit or implicit, have a huge impact on pedagogy (Kirschner, 2009). Siemens (2006) also argues, the definition people adopt of learning provides “a reflection of what the writer already holds to be true about learning” (p. 20).

As such a classification of learning theories based on underlying ontological and epistemological assumptions provides a useful way for both understanding learning and arriving at a working definition for learning for this research. To this end the various learning theories will be categorised into learning paradigms. However before doing so it is necessary to define how terms such as paradigm, theory, etc. will be used, as they are often used to refer to the same things in the literature. For example what Kearsley (2014) refers to as “learning theories”, Conole (2010) calls “models and frameworks”, or what Cooper (1993) calls learning “paradigms”, Schuh & Barab (2008) call “psychological perspectives” or “theoretical perspectives”.

2.7 Theory, Philosophy and Paradigm

Approaches to teaching are grounded, whether explicitly or implicitly, in the underlying philosophical perspectives of the lecturer (Duffy & Jonassen, 1992). To this end understanding learning theories and their underlying philosophical perspectives is important.

2.7.1 Theory

A theory is a general principle that explains or predicts facts, observations or events. Theories bring together findings from previous research and are generally accepted after repeated testing (Koponen, 2009). A learning theory is a description or explanation of how learning occurs and is linked to underlying assumptions arising from philosophical perspectives (Schuh & Barab, 2008). In this research the following are considered examples of learning theories; Cognitive Load Theory or Situated Learning, Social Development Theory, etc. as listed by Kearsley (2014) in his TIP database. “Learning theories...are developed and linked to a particular set of assumptions, supposedly consistent with one of the theoretical perspectives” (Schuh & Barab, 2008, p.69). These assumptions, or philosophical perspectives, are discussed in the next section.

2.7.2 Philosophy

Our philosophical perspectives are assumptions with regard to the nature of reality, what can be known (ontology) and how we come to know about it (epistemology). As Schuh & Barab, 2008 point out, “these are sets of beliefs and are not open to proof in the positivist sense of the word” (p.71) However while these perspectives are not necessarily open to positivist examination, being aware of our perspectives and their inherent assumptions is vital in so far as they impact our development of learning theories. The figure below depicts the relationship between philosophical perspectives and learning theory.

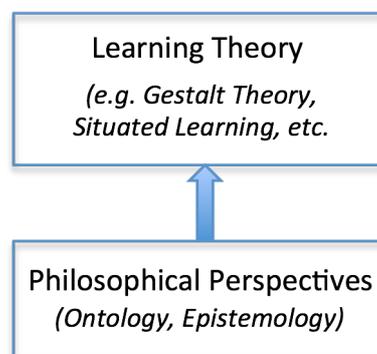


Figure 8: Philosophy and Learning Theory

2.7.3 Paradigm

While philosophical perspectives impact and give rise to learning theories, it is possible to retrospectively apply a categorisation to multiple learning theories that share common underlying philosophies. This classification is referred to as a paradigm. Thomas Kuhn’s (1962) book “The Structure of Scientific Revolutions” is responsible for the use of the term “paradigm” to describe beliefs. While there are a wide range of uses of the word paradigm, both by Kuhn and others (Morgan, 2007), the term is used here to reflect a set of beliefs that are accepted but are not seen. Mack (2010) says that “together, ontological and epistemological assumptions make up a paradigm” (p.5). However it could be argued that axiological assumptions (see Engle, 2008) and potentially other assumptions (see Morgan, 2007) also impact paradigms. However for the purpose of a learning paradigm, ontology and

epistemology can be considered as the most important set of beliefs that impact learning theories.

A paradigm is typically characterised by a set of theories that share the same axiomatic beliefs (Guba and Lincoln, 1985). The figure below shows how when multiple learning theories are related by similar underlying philosophical perspectives, these can be classified together as a paradigm. It is these paradigms that impact pedagogy and instructional strategies (Duffy & Jonassen, 1992).

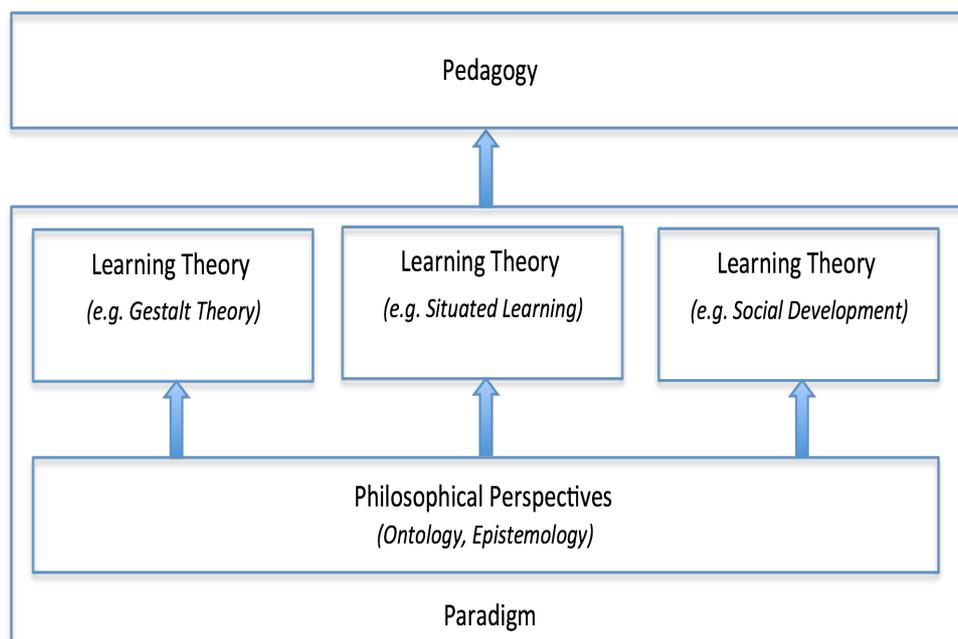


Figure 9: Conceptual view of a Learning Paradigm

The next section will provide a paradigmatic classification of learning theories in order to situate the definition of learning adopted in this research.

2.8 Learning Paradigms

Learning theories are typically arranged into a series of paradigms that range from three to six categories. The table below depicts a comparison of the paradigmatic categorisations identified by several authors.

	Behaviourism	Cognitivism	Constructivism	Cognitive Constructivism	Situativism	Connectivism
Greeno (1998)	x	x			x	
Siemens (2006)	x	x	x			x
Ally (2008)	x	x	x			x
Schuh & Barab (2008)	x	x		x	x	x
Ertmer & Newby (2013)	x	x	x			

Table 1: Learning Paradigms

While there is generally some commonality, most authors choose to divide learning into more or less paradigmatic orientations. However, the three main paradigms are Behaviourism, Cognitivism and Constructivism with numerous subsets being possible (Siemens, 2006). Several authors are now including Connectivism as a new learning perspective, the concepts of which form the basis of both the definition of learning and the implementation of the learning environment in this research.

However, as mentioned earlier, this delineation into what are here called learning paradigms, is neither clear nor consistently applied. As is depicted in the table above, researchers take different perspectives as to how to delineate the various paradigms. In addition to this, placing learning theories into these paradigms is itself a “shifting sands” approach. For example, Gagne’s theory of learning is often classified as an example of the Behaviourist paradigm (e.g. Deubel, 2003 and McLeod, 2003) however others classify it as a Cognitivist paradigm (e.g. Streibel, 1989). This does not necessarily represent a conflict in categorisation but is also partly due to the theories themselves evolving over time to take on philosophical principles of other paradigms.

In order to situate the philosophical differences of Connectivism it is necessary to firstly briefly discuss the other three paradigms. A brief overview of these four paradigms will be

presented below before discussing Connectivism in more detail. A commonly adopted method for comparing the various paradigms is based on Schunk's (1991) five questions:

1. How does learning occur?
2. Which factors influence learning?
3. What is the role of memory?
4. How does transfer occur?
5. What types of learning are best explained by the theory?

These five questions will be used to briefly compare the four paradigms.

2.8.1 Behaviourism

Behaviourism focuses on behaviour modification through stimulus and response, with learning seen more as a passive process with a focus on the role of the teacher (Conole, 2010). Its leading theorists include Pavlov, Skinner, Thorndike, Watson, Guthrie, Hull, and Tolman (Behlol & Dad, 2010).

1. How does learning occur?
Learning is seen as a black box, where what is seen in terms of observable behaviour is the main focus.
2. Which factors influence learning?
This paradigm is based on stimuli such as reward and punishment.
3. What is the role of memory?
Memory is a "hardwiring" as a result of repeating activities, where reward and punishment impact this process.
4. How does transfer occur?
Transfer occurs through stimulus and response patterns.
5. What types of learning are best explained by the theory?
This paradigm is best seen in task-based learning theories.

2.8.2 Cognitivism

Cognitivism focuses on learning as a process of transforming cognitive structures. Learning is about building mental structures and the study of learning is about understanding the

operation of the mind (Conole, 2010). Its leading theorists include Piaget, Bruner, Merrill, Gagne, and Schank (Behlol & Dad, 2010).

1. How does learning occur?

Cognitivism is based on “computer” learning, where learning is seen to be structured or computational.

2. Which factors influence learning?

Learning is influenced by existing mental schema and previous experiences.

3. What is the role of memory?

Memory is seen as helping encode, store and then retrieve knowledge.

4. How does transfer occur?

Transfer is essentially seen as the learner duplicating the knowledge constructs of the teacher.

5. What types of learning are best explained by the theory?

This paradigm is best seen in learning theories that foreground reasoning, objectives and problem solving.

2.8.3 Constructivism

Constructivism focuses on learning in contexts and through relationships with knowledge being constructed (Anderson & Dron, 2011). Knowledge is constructed through encounters with information and as such the new information is related to prior knowledge. Its leading theorists include Piaget and then further developments by Vygotsky, Dewey, Vico, Rorty, and Bruner (Behlol & Dad, 2010).

1. How does learning occur?

Learning occurs through meaning created by the learner.

2. Which factors influence learning?

Learning is influenced by engagement, and so social aspects are key to learning.

3. What is the role of memory?

Prior knowledge of the learner is remixed to take into account the current context.

4. How does transfer occur?

Transfer of knowledge is through socialisation.

5. What types of learning are best explained by the theory?

This paradigm is best exhibited in learning theories that emphasise social or ill-defined learning situations.

2.8.4 Connectivism

Connectivism, referred to by Siemens (2005) as a “learning theory for the digital age” emphasises the role of both social and cultural context in learning, as well as the impact of technology both as a knowledge store and a learning node. The main theorists of Connectivism are Siemens and Downes.

1. How does learning occur?

Learning is distributed within a network, both social and technological.

2. Which factors influence learning?

The diversity of networks.

3. What is the role of memory?

Adaptive patterns that represent the current state of knowledge within the networks.

4. How does transfer occur?

Transfer is essentially the connecting to or adding of nodes to the network.

5. What types of learning are best explained by the theory?

This paradigm is best exhibited in theories that deal with complex learning in changing technological spaces.

The next section explores Connectivism in detail, as an emerging paradigm on how learning within the digital age should now be viewed.

2.9 Connectivism

Learning theories that have been applied to online learning have typically grown out of the discipline of education and instructional design, where pre-technology era theories have been adapted in an attempt to address this new environment (Bell, 2010). Connectivism, unlike previous learning theories, claims to be a “learning theory for the digital age” (Siemens,

2004). While it shares some principles with other paradigms, its major point of departure is that the previous paradigms do not include the effect of technology on how we live, communicate and learn. Much like previous learning theories, Connectivism builds on other theories by combining elements of them into this proposed new theory of learning.

One of the key aspects of Connectivism is the use of a network metaphor. This is not unique in that previous theories such as connectionism (Paavola, Lipponen & Hakkarainen, 2004) also adopted this metaphor. However connectionism makes use of networks more in a cognitivist way, where learning is anthropocentric and takes place inside the human mind. Connectivism is in fact an integration of principles from multiple theories including chaos, network, complexity and self-organisation theories (Williams, Karousou & Mackness, 2011).

With Connectivism a node is anything that can be connected to another node, and this includes information, data, feelings, images, etc. Learning is essentially the process of creating connections between nodes and developing a network. An additional aspect of this network metaphor is that not all connections in the network are of equal strength with both weak and strong connections existing. Siemens (2004) also refers to rogue nodes which are nodes that do not seem to connect at all to the network.

Siemens (2004) defines learning as “a process that occurs within nebulous environments of shifting core elements - not entirely under the control of the individual. Learning (defined as actionable knowledge) can reside outside of ourselves (within an organisation or a database), is focused on connecting specialised information sets, and the connections that enable us to learn more are more important than our current state of knowing.” This definition of learning, from a connectivist perspective brings out some of the key principles embedded in this paradigm.

Firstly, learning is defined as “actionable knowledge”. This is distinct from definitions of learning based on other paradigms that tend to focus on a change in output (know what) or the process (know how). This concept of learning is concerned with the ability to discern knowledge both in terms of its value to know and to make sense and apply this knowledge.

As such this definition is more of a value-view of learning and knowledge (know why or know where).

Siemens (2004) argues that “chaos is a new reality for knowledge workers” and that it is within these chaotic environments, where there is no longer a scarcity of knowledge but a ubiquity of knowledge, that modern learners need to operate. Learning in these environments is therefore an intricate weave of both discerning what is worth knowing, and making sense of what is known. Learning therefore requires the ability to not only recognise patterns in the “chaos” of knowledge but also to adjust to the constant shifts in these patterns.

The second key element of this definition is that learning can reside outside of human agents. Being a “learning theory for the digital age” Connectivism considers non-human nodes as important as human nodes. One of Connectivism’s major critiques of other learning theories is that they are based on learning occurring inside of a person. While this may seem obvious in Behaviourist and Cognitivist views, Siemens (2004) argues that this is also the case in Constructivist perspectives of learning, where even though there may be a social element to the learning, learning nonetheless is perceived to take place exclusively in the person. This also resonates with Latour’s (2005) actant theorising which suggests giving equal actionability to human and non-human actants (see Chapter 3).

Taking these two aspects, Siemens (2004) says that learning, or actionable knowledge, “is a process that occurs within nebulous environments of shifting core elements - not entirely under the control of the individual”. Siemens (2004) identifies eight key principles of Connectivism:

- Learning and knowledge rests in diversity of opinions.
- Learning is a process of connecting specialized nodes or information sources.
- Learning may reside in non-human appliances.
- Capacity to know more is more critical than what is currently known
- Nurturing and maintaining connections is needed to facilitate continual learning.
- Ability to see connections between fields, ideas, and concepts is a core skill.

- Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.
- Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. While there is a right answer now, it may be wrong tomorrow due to alterations in the information climate affecting the decision.

Connectivism is about placing emphasis on student-centered learning where students search for, filter, analyse and synthesise information (Darrow, 2009). This is what Siemens (2006) refers to as meaning making. However for Downes (2009), this meaning making is not just about the individual, but rather the key tenet of the connectivist dynamic, the network.

Downes (2009) argues that not just any network would constitute a connectivist network, but rather it is a network that produces, what he refers to as “connective knowledge”. He proposes that the four elements that constitute the connectivist network are:

- **Autonomy** - where the individual nodes (people) make their own decisions. This autonomy produces new knowledge.
- **Diversity** - where the members are significantly different both in their views, culture, etc., as diversity of participation produces new knowledge
- **Openness** - where communication flows freely and there is no clear boundary between members and non-members. This openness allows for the free flow of information that generates new knowledge.
- **Interactivity and Connectedness** - Knowledge is not merely passed between people, nor does it reside in any one person, rather it is emergent from the interaction of the whole.

2.10 Meaning Making

A key element of learning in a connectivist sense is the concept of meaning making, as is depicted in the table below. Whereas traditional learning environments typically based on

behaviourist and cognitivist paradigms focus on knowledge transmission, student-centered approaches, such as Connectivism, tend to focus on meaning making.

<i>Aspect</i>	<i>Traditional Instructional Learning Environments</i>	<i>Student-Centred Learning Environments</i>
Learning	Knowledge transmission; individual; process of information reception, storage, retrieval and comparison with others	Meaning making; social; process of internal and social negotiation (dialogue) and shared with others
Locus of meaning	Heads of individuals	Individual and socially negotiating minds and the discourses of the community
Contributing disciplines	Psychology	Anthropology, sociology, ethnography
Bases for conceptions of learning	Cognitivism, behaviourism, communications theory	Social constructivism, situated learning, everyday reasoning, activity theory, ecological psychology, distributed cognitions, case-based reasoning

Table 2: Indicators of shifts in approaches to learning environments (Brown, 2008, p. 222)

While learning may be directed towards careers, most learning arises out of a need to make sense of information, and as such Siemens (2006) argues, that views of learning need to take sense-making and meaning-making into account, and that both are key to connectivist learning. Siemens (2006) defines sense making as seeing patterns in information and knowledge, while meaning making is determining the impact of knowledge. “To make sense then is to understand; to make meaning is to understand the implications of the sense making process... This act of meaning and sense-making is the domain in which most learning occurs in an information-abundant world” (p. 24).

While Connectivism attempts to position itself as a new theory that is suitable for the digital age, with its focus on networked learning, and learning both within humans and technology, the theory has come under critique from some researchers.

2.11 Critique of Connectivism

Connectivism has been critiqued for not acknowledging the role of its antecedent theories enough, resulting in some arguing that Connectivism is not so much a radical departure as it is complementary to previous theories (Bell, 2010).

It has also been argued that Connectivism does not add significantly to the principles of learning identified by previous theories leading to its status as a new theory being challenged (see Verhagen, 2006). However others such as Kop & Hill, (2008) do credit Downes with having “elucidated an epistemological framework for distributed knowledge which provides a strong philosophical basis for the connectivist learning framework” (p.8).

An additional critique is that Connectivism may be defining learning too broadly as it begins to include non-human actors within learning, thereby drawing on theories from learning, philosophy of knowledge, chaos, etc. Verhagen (2006) argues that Connectivism is a “curriculum” and not a theory, in that it contributes to the development of new pedagogies that are learner centered rather than redefining how learning is taking place in the digital age. Others such as Bell (2010), while acknowledging the contribution of Connectivism to the ongoing discussion of learning, suggest that it is better termed a “phenomenon”.

These critiques of Connectivism point to the infancy of the theory, but also to the fact that no single theory is likely to be able to explain the complexity of learning. This is even more so the case as learning is extended to include non-human actors. As Bell (2010) says, “good research is not only informed by theory but helps to build it.” Mackness, Mak, & Williams (2010) say, referring to the debate around Connectivism, that “the basic theoretical concepts (are) interesting and useful” (p.267), and as such this research embraces the evolving concepts of learning, as defined by current views of Connectivism, in order to see how our understanding of learning can be advanced by considering learning within a social media environment.

2.12 Defining Learning

This section will now develop a working definition of learning based on connectivist principles. “There is no definition of learning that is universally accepted by theorists, researchers, and practioners” (Schunk, 1996, p.3). The preceding discussion, both on the changing meaning of learning, knowledge and the concomitant development of theories, bears ample testimony to this.

From a technological perspective, learning can be divided into two broad categories, Prescriptive learning systems and Emergent learning networks (Williams, Karousou, & Mackness, 2011). Figure 10 Below presents a useful framework that compares these two modes of learning.

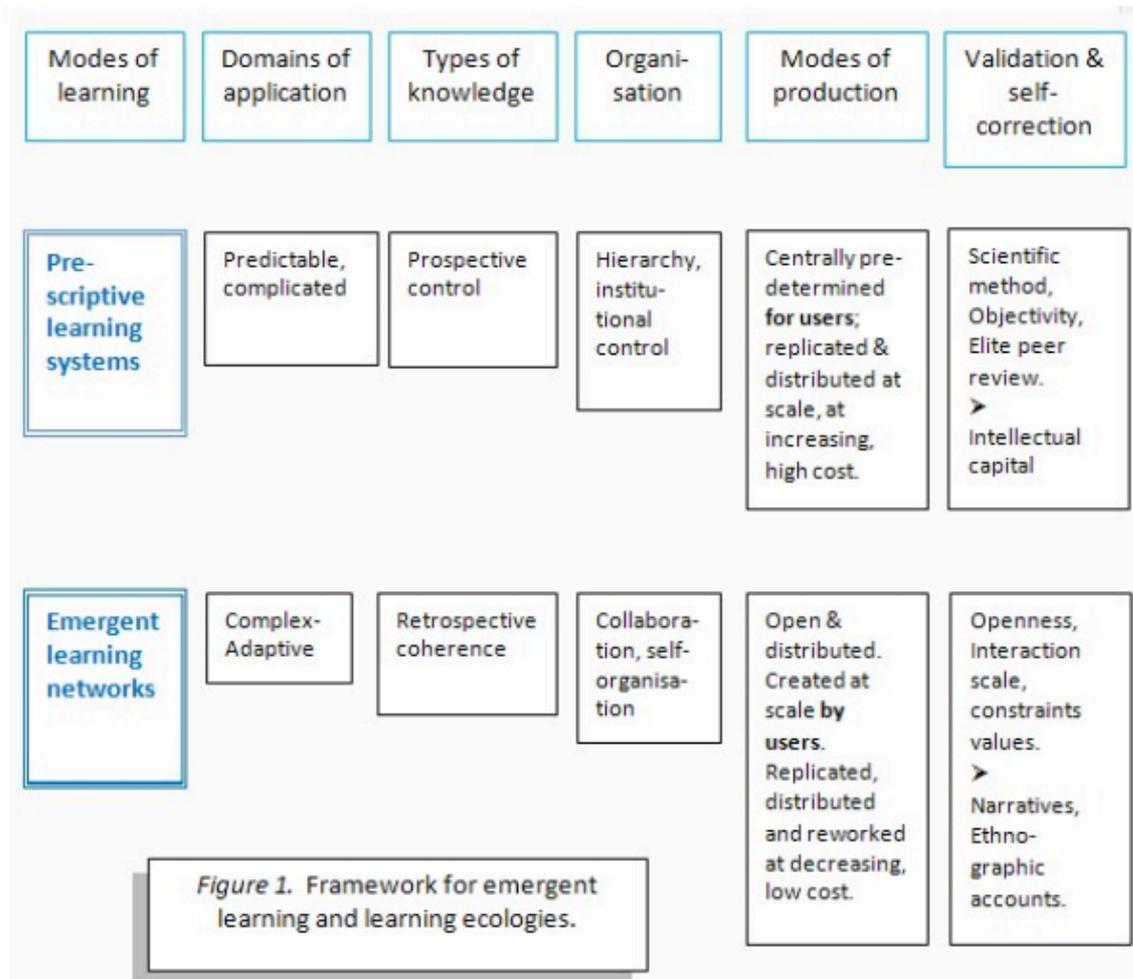


Figure 10: Modes of Learning (Williams, Karousou & Mackness, 2011, p. 41)

This framework divides learning into Traditional Learning Approaches (TLA) and new technological-era Emergent Learning Approaches (ELA). In order to develop a working definition of learning, based on the connectivist perspective, it is necessary to draw together the various features that distinguish traditional and connectivist-based emergent learning. The following table illustrates these differences.

Attribute	Dimension	Traditional	Emergent
How	1. Learning Approach	Acquisition	Assimilation
		Internalisation of knowledge	Externalisation of knowledge, emergent from whole
		Know-what, Know-how	Know where, know-why
		Understanding	Meaning making
	2. Learning Focus	Content focus	Conversation focus, embedded in engagement
	3. Learning Structure	Linear	Networked
Where	4. Learning Environment	Closed	Open
	5. Learning Location	Learning resides in humans	Learning resides in humans and non-human appliances
Who	6. Learning Control	Hierarchical/controlled	Collaboration, self-organisation, autonomy
What	7. Knowledge Characteristics	Clean, ordered	Conflicting, noisy
		Predictable	Uncertainty
		Discrete knowledge chunks, internally stored	Connected knowledge chunks, internally/externally stored
		Prospective control	Retrospective coherence
		Paucity of knowledge	Over-abundance of knowledge

Table 3: 7-Dimension comparison of learning approaches

The first dimension is related to the actual learning approach. In TLAs learning is a process of knowledge acquisition whereas in ELAs information must be assessed for its worth before it is acquired, due to the ubiquity of information (Siemens, 2006). Secondly in a TLA learning is viewed as the internalisation of knowledge whereas in ELAs learning is a factor of both the internalisation and externalisation of knowledge. We “externalise ourselves in order to know and be known” (Siemens, 2006). Knowledge is emergent from the whole network as it is shared amongst the nodes (Downes, 2006) and so by externalising knowledge it is internalised. Another key aspect of ELAs is that learning is focused on discerning (know-where, know-why) not just know-what and know-how. Due to the abundance of information, and also (as is discussed below) the noise within the information, a key part of ELAs is knowing where to find the relevant knowledge, and why to accept or not accept knowledge. This leads to the last key aspect of the ELAs and that is their focus on meaning making as opposed to understanding. This is the ability to form connections and recognise patterns. “Unlike constructivism, which states that learners attempt to foster understanding by meaning making tasks, chaos states that the meaning exists – the learner's challenge is to recognise the patterns which appear to be hidden” (Siemens, 2004), or as Downes (2005) says “to ‘learn’ is to acquire certain patterns” (Section O, para. 2).

The second dimension is the learning focus. Whereas TLAs focus more on content and the acquisition of this content, ELAs focus is on conversation and knowledge embedded in

engagement. As Siemen's (2004) says "the pipe is more important than the content within the pipe", and so the process of engagement is seen as the key focus of learning, as this equips learners for lifelong learning.

The third dimension is the learning structure, and in this regard TLAs tend to follow a more linear approach to understanding learning (e.g. Behaviourism's cause and effect) whereas ELAs are based on a network metaphor, both in terms of the internal representation of learning and also in terms of the social network within which learning is intricately embedded.

The fourth dimension is the learning environment in which learning typically takes place. TLAs are normally arranged around closed environments where only the participants of the course have access to the course content and course instruction. A key tenet of ELAs (Downes, 2006) is openness, where the learning environment is open to people outside of the course. This, Downes (2009) argues, is important because it allows information flow, which generates new knowledge.

The fifth dimension is the learning location, or where learning is perceived to take place. While there may be some overlap with some learning paradigms and Connectivism in the previous dimensions, this is a key differentiator. In TLAs, based on previous paradigms (Behaviourism, Cognitivism, Constructivism) learning is viewed as taking place inside the mind of the learner. While ELAs (based on Connectivism) see learning as taking place not only inside the mind of individuals but also externally, specifically in technology. As such the nodes in the network include both human and non-human nodes and learning takes place between nodes, and knowledge resides within all nodes. "The networked act of learning exists...internally as neural networks...(and) externally as networks we actively form" (Siemens, 2006, p.10). This is picked up in more detail in Chapter 3 where I apply Latour's (2005) actant perspective of affordance theory where equal actionability is given to human and non-human actants.

The sixth dimension is who controls the learning process. In TLAs learning is typically directed and controlled by an instructor, whereas ELAs have no hierarchy in terms of the

learning environment, and learning is through collaboration and self organisation. Downes (2009) argues that autonomy, where the individual nodes make their own decisions, is key to the production of knowledge.

The final dimension considers the characteristics of knowledge in terms of the two types of learning environments. TLAs tend to be developed around knowledge that is clean and ordered and in most cases predictable. However ELAs work best in environments where the knowledge is conflicting, noisy and there exists lots of uncertainty even regarding the value of the knowledge. As result of this TLAs tend to operate with discrete knowledge chunks while ELAs work with connected knowledge chunks, where each node only contains partial knowledge and so knowledge is not in any node/person but in some assemblage of nodes. This spread of knowledge can cause confusion, and so rather than clear prospective control of the knowledge as is the case in TLAs, coherence is often only retrospective once patterns have emerged and meaning has been induced. These knowledge characteristics are mainly as a result of the overabundance of knowledge that now exists. While previous learning approaches were modeled on a paucity of knowledge, or at least limited access to knowledge, ELAs now need to take into account abundant, conflicting, and unstructured knowledge sources.

What is clear from the preceding discussion is that defining learning is not simply a matter of saying what it is, but it needs to be considered in light of a wide range of factors. In this discussion the Learning Approach, Learning Focus, and Learning Structure all address how (process) learning takes place. It also addresses the “what” (outcome) of learning in terms of the knowledge that is learned. Typically definitions of learning are restricted to the what (outcomes) and how (process), however other factors that also need to be considered, especially in our technological era, are where (learning environment, learning location) learning takes place and who (learning control) is in control of the learning process. All of these factors contribute to the shifting meanings in learning.

So while there is no definition of learning that is universally accepted (Schunk, 1996) the following is the definition that is adopted in this research and which is consistent with this research’s connectivist perspective.

Learning is actionable knowledge

- (how) that emerges and is assimilated through meaning making connections
- (where) between human and non-human nodes of an open network
- (who) by autonomous and self-organising agents
- (what) that is stored internally within individuals and externally within the network

This connectivist-based definition of learning is significantly different to traditional learning definitions that adopt more positivist-based views of outcomes. This definition emphasises the role of networked engagement in meaning making between agents and the distributed nature of learning and knowledge across human and non-human nodes.

Siemens argues that Connectivism is a learning theory for the digital age. Whether it is a theory or a pedagogy, or something in between, there is no doubt that the changes in technology and their impact on both how knowledge is stored, shared, analysed, etc. demands a reassessment of current learning theories. The next section will now consider how e-learning has evolved and how this too demonstrates both changes, and in some respects, embedded philosophical perspectives in the emerging use of technology for learning.

2.13 e-Learning

As the theories of learning have responded to various contextual factors, so too has the development of e-learning (Blewett, Quilling, Bulbulia, & Kanyiwamuyu, 2011). Like any emerging area, a plethora of terms are used (often interchangeably) to describe e-learning environments. "Commonly used terms include: educational technology, learning technology, e-learning, Computer Supported Collaborative Learning (CSCL) and more recently Technology-enhanced Learning (TEL)" (Conole, 2010, p. 2). The issue with terms such as "Computer Supported Collaborative Learning" is that the term is already dated by referring to "computers" and hence does not necessarily include the Internet or mobile phones etc. Terms such as "Technology-enhanced Learning" limit the role of learning with technology to simply being "enhanced" by technology and not necessarily taking place solely on technology or as

Siemens (2005) argues, that the technology itself learns. Therefore, for the purpose of this research the term "e-learning" will be used as representing the least etymological laden term. The next section looks at the development of e-learning environments as they increasingly become the place where teaching and learning takes place (Heider, et al., 2009).

2.14 E-learning Environment Types

While e-learning is an overarching term used to refer to online learning, within this there are a variety of pedagogies, emergent learning theories and e-learning environments. As with the plethora of terms used to refer to the field of e-learning, there are also a range of terms used to refer to the online environments in which e-learning takes place. This plethora of terminology has led to confusion as both researchers and practitioners attempt to navigate this emergent space (Dobozy & Reynolds, 2010). Terms such as Learning Management System (LMS) are substituted with Course Management System (CMS) or Virtual Learning Environment (VLE), etc. As a result of this confusion, various attempts have been made to classify and explain the terminology associated with e-learning environments (Dobozy & Reynolds, 2010; Mott, 2010; Wilson, et al., 2008).

Dobozy and Reynolds' (2010), framework provides a useful point of departure for this undertaking. They classify e-learning environments into three dimensions;

- Dimension 1:Foundation stage (come and grab) - LMS/VLE 1.0
- Dimension 2:Developing stage (come and interact) - LAMS/VLE 1.0
- Dimension 3:Experiential stage (come and be) - (MU)VLE/VLE 2.0

Using their three "dimensions" as a point of departure, it is possible to identify three types of e-learning environments. The first type of e-learning environment is associated with Learning Management Systems (LMSs). Dobozy and Reynolds (2010), refer to these as "come and grab" environments. These environments are primarily concerned with management and content and are characterised by a "product" focus (Mott, 2010).

The second type of e-learning environment is associated with Virtual Learning Environments (VLEs). They refer to these as "come and interact" as they are focused on the space where interactions take place (Dobozy & Reynolds, 2010). These environments are characterised by a "place" focus.

The third type is associated, with what they call, VLE 2.0. They refer to these as "come and be" (Dobozy & Reynolds, 2010). These environments are characterised by a "people" focus. However, rather than versioning the second type (VLE), a more useful term for these environments are Personal Learning Environments (PLEs) (Mott, 2010).

While this classification masks the inconsistencies in naming of environments, it provides a useful framework to understand and analyse the names associated with the various e-learning environments. Using an extended form of Dobozy and Reynolds' (2010) classification, a three type e-learning environment framework is presented below (Figure 11). The word "type" rather than "generation" is used, as although each type has emerged chronologically after the previous, all three types continue to co-exist, and to a large extent compete for funds and research attention. Additionally it is important to recognise that while this conceptual framework presents three types, the delineations in terms of functionality are somewhat fuzzier. The functionality of a "Product" environment may contain elements of a "Place" environment and vice versa. In order to situate this research, and the use of Social Network Systems such as Facebook, each of these types will be discussed in the light of previous research.

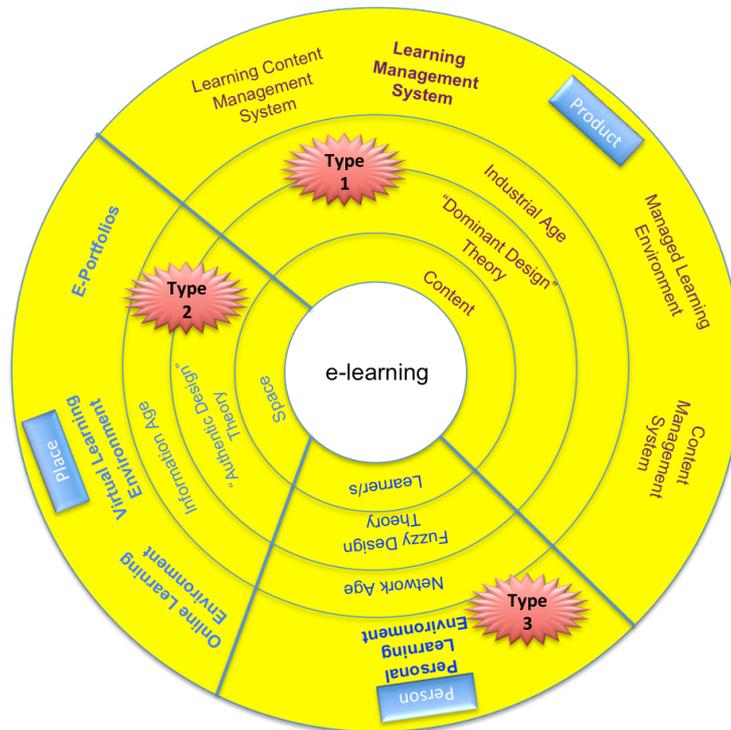


Figure 11: Types of e-learning environments

2.14.1 Type 1 - "Product" e-learning environments

The first type of e-learning environments focused mainly on "production" issues mirroring the first generation of the Web. "The first generation of the Web has much in common with an "industrial" approach to material productive activity. Companies and developers worked to produce artefacts for consumption" (Lankshear & Knobel, 2007, p. 12). These environments were (and are) concerned with the content of learning. This has led them to focus predominantly on managing the content and process of learning. Williams, et al. (2011) citing Collins and Halverson say that "traditional modes of learning arose in response to the industrial revolution and were based on standardised mass-production" (p. 3). Type 1 environments typify this continued focus.

These environments have existed under a wide range of names, such as "Learning Management Systems", "Learning Content Management Systems", "Managed Learning Environments", and "Content Management Systems". They focus predominantly on "meeting the needs of the institution in providing...identity integration, auto-population of courses, ease of institutional technology support, automatic grade processing" (Severance, Hardin, &

Whyte, 2008, p. 47). Watson and Watson (2007), drawing from The American Society for Training & Development use the following terms when describing the functional requirements of an LMS; "integration", "manage", "administration", "standards", "configuration".

Etymologically the nomenclature associated with these environments encourages a connection with "product", "management", and "content" pedagogies. "It has not gone unnoticed that even the term learning management system suggests disempowerment--an attempt to manage and control the activities of the student by the university" (Sclater, 2008, p. 1).

Critical theorists have long argued that language exhibits and carries epistemological baggage. "It is crucial to appreciate the ways in which...epistemological 'baggage' has already been packed into theories and concepts" (Garry, 2004, p. 304). As such the nomenclature signals paradigmatic and pedagogical assumptions.

Watson and Watson (2007, p. 28) in defining an LMS provide an interesting insight into the embedded pedagogy: "An LMS is the infrastructure that delivers and *manages instructional content*, identifies and assesses individual and organisational *learning goals*, *tracks* the progress towards meeting those goals, and *collects* and presents data for *supervising* the learning process... An LMS delivers *content* but also handles course *registration* and *administration*, *skills gap analysis*, *tracking* and *reporting*" (e.a.).

Obviously missing from this definition is the learner. Learning goals are mentioned but as part of the management process. Most of the other words emphasised are management related. A pedagogical bias towards instructivism is revealed in the term "manages instructional content". The definition says that the "LMS is the framework that handles *all* aspects of the learning process" (Watson & Watson, 2007, p. 28 e.a.), yet the learner is missing.

These environments are the primary target of commercial offerings as they appeal to the institutional need for control and management, and allow lecturers (without any paradigm

change) to switch from offline to online modes of delivery, by simply uploading slides and other course administrative material (Mott, 2010).

Type 1 environments, typified by LMSs, resonate with elements of the "Industrial Age", where the mechanisation, control and focus on production, are central to the process. Type 1 environments are therefore referred to as "Product" e-learning environments. "They conform to a classroom metaphor, which may explain, at least in part, why we "can't ... stop lecturing online" (McLoughlin & Lee, 2007, p. 668). Type 1 environments reflect elements of Behaviourism both in the nomenclature and embedded instructivist pedagogy.

2.14.2 Type 2 - "Place" e-learning environments

Watson and Watson (2007) argue that society has progressed from the Industrial Age into the Information Age. This is supported by a concomitant move towards Type 2 e-learning environments. Type 2 environments focus mainly on the "place" of learning. While Type 1 environments focus on computerised systems (production), especially prior to the proliferation of the Internet through the World Wide Web, Type 2 environments seek to make use of the reach and virtual nature of the Web. As such, Type 2 environments characterise the boom of the Information Age (Williams, et al., 2011).

The terminology associated with Type 2 environments reveals a focus on the "virtual" or "place" aspect of the environment. Type 2 environments are called "Virtual Learning Environments", "Online Learning Environments", "Collaborative Learning Environments", etc. Dillenbourg, Schneider, and Synteta (2002), make use of the following phrases in defining a VLE - "information space", "social space", "turning spaces into places", "virtual space".

Due to Type 2 environments often being hosted in the cloud, rather than on institutional platforms, the focus moves from a lecturer-centric control to a lecturer/student control. In Type 2 environments lecturers are still responsible for course setup, administration, etc., but students typically have some options around customising their space, through themes and widgets. So while Type 1 environments focus on content, Type 2 environments focus on the

space where the content is delivered and some of the affordances of virtual spaces, such as customisation (Williams, et al., 2011).

Dobozy and Reynolds (2010) refer to these Type 2 environments as VLE 1.0, versioning the term VLE in an attempt to distinguish it from Type 3 environments (discussed below).

However, while Type 2 environments focus on the virtual nature of learning they have not fully embraced the next development of the web, Web 2.0, with its development of a rich set of collaborative tools such as blogs, wikis, microblogs, and social networks (Al-Khatib, 2009; Ullrich, et al., 2008). While the underlying learning theories of Type 2 environments are not as obvious as in Type 1 environments elements of Humanism (focus on motivation) are apparent.

2.14.3 Type 3 - "People" e-learning environments

The third type of e-learning environments are the Type 3 environments. These have arisen largely in response to the development of Web 2.0 technologies. While only retrospectively versioned as Web 2.0, the term Web 2.0 was coined by Darcy Dinucci but made popular by Tim O'Reilly (Allen, 2013). The term refers to the development of the web from a more static, content serving model, to a more collaborative, content generated model. The following list (Figure 12) developed by O'Reilly (2007) gives a sense of the shifts that have taken place from Web 1.0 to Web 2.0.

Web 1.0	Web 2.0
DoubleClick	--> Google AdSense
Ofoto	--> Flickr
Akamai	--> BitTorrent
mp3.com	--> Napster
Britannica Online	--> Wikipedia
personal websites	--> blogging
evite	--> upcoming.org and EVDB
domain name speculation	--> search engine optimization
page views	--> cost per click
screen scraping	--> web services
publishing	--> participation
content management systems	--> wikis
directories (taxonomy)	--> tagging ("folksonomy")
stickiness	--> syndication

Figure 12: Web 1.0 and Web 2.0 comparison (O'Reilly, 2007, p. 18)

Notable examples are shifts such as the move from Britannica Online to Wikipedia. This represents the move from a single-organisation compiled encyclopaedia to a collaboratively constructed encyclopaedia. Likewise, there are shifts from "publishing", or content pushing to "participation" or co-creation of content. As O'Reilly (2007) points out, the "central principle behind the success of the giants born in the Web 1.0 era who have survived to lead the Web 2.0 era appears to be this, that they have embraced the power of the web to harness collective intelligence" (p. 22). Collective intelligence, collaboration, etc. are hallmarks of Web 2.0. Web 2.0 is more about people producing content than content produced for people. Web 2.0 consists of a wide range of sites such as wikis (e.g. www.wikipedia.com), blogs (e.g. www.wordpress.com), social networks (e.g. www.facebook.com), microblogs (e.g. www.twitter.com), social video (e.g. www.youtube.com), etc. The common attribute is that all of these sites are based around a social, collaborative model where content is mainly user generated.

Type 3 e-learning environments have emerged in response to these Web 2.0 technologies. As such a "people" or social focus typifies Type 3 environments. The focus of these environments, unlike the previous types, "what" and "where" orientations, is on "who".

"Unlike the 'industrial' artefactual nature of Web 1.0 products, Web 2.0 is defined by a 'post-industrial' worldview focused much more on 'services' and 'enabling' than on production...(more on) 'leverage', 'collective participation', (and) 'collaboration'" (Lankshear & Knobel, 2007, p. 12).

A key element of Web 2.0 is the concept of networked spaces as exemplified in social networks like Facebook (www.facebook.com), Twitter (www.twitter.com), and YouTube (www.youtube.com). As such Type 3 environments characterise the Network age and the nomenclature tends to focus on connectedness or personalisation. Typical terms are Personal Learning Environments (PLE), Social Learning Networks, Self Organising Learning Environments, Mashups, etc. (Dobozy & Reynolds, 2010). "The PLE concept is relatively new as it pertains to the creation of enabling technologies that foster learning exchanges or networks that privilege the individual over the institution" (Severance, et al., 2008, p. 48).

While Type 1 and Type 2 environments typically consist of a single environment where the learning takes place, Type 3 environments, as typified by PLEs, are a "mashup" of technologies that are made available to the user in a customisable way. So, unlike the other types, Type 3 PLEs are "not a pre-built collection of tools and content but a framework that allows a learner to assemble his own suite of applications and content sources" (Ullrich, et al., 2008, p. 710).

In addition to the driving technologies of Web 2.0, Type 3 environments, are "motivated by a lifelong and informal learning agenda outside the boundaries of current institutionalised education" (Sclater, 2008, p. 5) and its proponents are attempting to position it as a replacement of Type 1 and Type 2 environments.

Type 3 environments with their focus on the individual and building of spaces to learn, contains paradigmatic reflections of Cognitivism and its focus on building "mental" structures to assist in learning. Additionally Type 3 environments also reflect elements of Constructivism and its focus on the construction of knowledge by individuals. "Fundamental to the Web 2.0 paradigm is the notion of an active audience and collaborative content creation which is in perfect alignment with the constructivist learning perspectives that see

learners as active creators of knowledge and learning as a social process of negotiation and construction" (Deng & Yuen, 2011, p. 441).

2.15 Future Directions

The question that remains is, what future directions are being signalled in terms of e-learning environments? It seems that some form of Type 4 e-learning environment may be needed, and in fact may already be well established. While the major shift from Type 1 to 3 has been the shift away from control to openness, mirroring the move from Web 1.0 (controlled by webmaster) to Web 2.0 (controlled by community), there appears to be a greater paradigmatic shift that may have been largely ignored.

While educators were prepared for, and have largely accepted the move to online learning spaces as a surrogate, or support for offline learning, they mostly were not expecting learning to take place in spaces that were not designed for learning at all. Common to Type 1, 2 and 3 environments is that these spaces were specifically designed for learning, however there has been a recent emergence of research into the use of not-designed-for-learning spaces for learning (Rambe & Ng'ambi, 2011).

This "crossing of the divide" is one of the hallmarks of the development of the Web and technology in general, where spaces that were not designed for something soon become the main player in that area. For example Google was designed as a search engine, it was not designed as an operating system (such as Microsoft Windows), however over recent years it has begun to fill this niche as an online operating system (Kolakowski, 2009). Mobile phones were designed to make and receive calls, they were not designed as cameras or for navigation, but recently they have come to replace cameras and GPS devices (Titkiw, 2012). There are many examples of this crossing of the technological divide, however, as with these examples, those whose space was "invaded", are often not prepared for this intrusion. The same may be the case in the current situation, where environments that were not-designed-for-learning, are now being used for learning.

In this regard, there is currently an emerging area of research around the use of a variety of Web 2.0 environments, that are not designed for learning per se, such as Social Network Systems (de Villiers, 2010; Rambe & Ng'ambi, 2011; Q. Wang, Woo, Quek, Yang, & Liu, 2012), Blogs (Lankshear & Knobel, 2006; Robertson, 2011), Microblogs (Aspen & Thorpe, 2009; Borau, Ullrich, Feng, & Shen, 2009), Social Videos (Burke & Snyder, 2008; Duffy, 2007) and Wikis (Chu, Siu, Liang, Capio, & Wu, 2013; Stephens, Robinson, & McGrath, 2013). While the use of these environments is sometimes referred to as "informal learning" or blended learning (Willems & Bateman, 2013), recent research is beginning to explore how these not-designed-for-learning environments are, and can be, used to support "formal" learning.

Williams, et al. (2011) point out that learners are already self-organising themselves in their own spaces, while researchers and educationalists have clambered to find and offer them solutions. However, "what has changed is that learners not only have access to the affordances of individualised tools to construct personal learning environments (PLEs), but that these are increasingly embedded in social networks which are, in turn, emergent and self-organising" (Williams, et al., 2011, p. 43). It is this movement, taking place mostly autonomously by students, which may well herald the next type of e-learning environment.

The next section will now focus on one instantiation of this emergent, self-organising Type 4 environment, *viz.* Social Network Systems, and specifically Facebook.

2.16 Social Network Systems

Of all the types of Web 2.0 sites, Social Network Systems are by far the most prolific. According to eMarketer (n.d.) nearly one in four people around the world are currently using social networks. boyd and Ellison (2007) define a Social Network System (SNS) as "web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system" (p. 211). As is clear from this definition, the essence of a SNS is sharing and connecting,

which comes out in Facebook's mission "to give people the power to share and make the world more open and connected" (Facebook, 2013d para.1).

Other terms used for SNSs are "social networking", "social digital technologies", "participatory media", and "social media" (Greenhow, 2009). For this research the term "Social Network System" will be used, as this represents the most common phrase.

While SNSs were designed primarily to allow people to connect, their applications have begun to extend into other areas such as politics, cultural studies, and more recently education. In 2007 boyd and Ellison (2007) reported that the main areas of SNS research were on "impression management and friendship performance, networks and network structure, online/offline connections, and privacy issues" (p. 212). There was no major focus on the use of these environments for education. There were some studies that looked at issues of privacy and lecturer access to student profiles, but the prevailing view was that "there is nothing education about SNSs" (boyd & Ellison, 2007, p. 212).

In fact many companies, government bodies, schools and universities during this period (and even to a large extent up until now) banned or blocked SNS access¹. According to boyd and Ellison (2007) "the U.S. Congress...proposed legislation to ban youth from accessing SNSs in schools and libraries" (p. 212).

Two years later Greenhow (2009) reported a similar situation. While researchers were beginning to show an "interest in learning from students' everyday out-of-school socio-technical practices" (p. 2) the media was painting a negative image of SNSs in terms of them being a "a passing fad, a waste of time" (p. 2) as well as dangerous. So even though there was a growing interest from fields such as economics, politics, cultural studies etc. as to how SNSs could be used, there were still "few studies (exploring) the link between SNS use and education" and that "a research-based discussion of SNSs and education (was) virtually non-existent" (Greenhow, 2009, p. 2).

¹ Facebook access was blocked during office hours for students at the University of KwaZulu-Natal during this research, and as such required me getting this access restriction removed in order to undertake the research.

However the last few years, since 2009, have seen an increase in the response to the call to explore SNSs and education. This is not surprising, as sites such as Facebook have grown exponentially in this time (Figure 13), growing from 150 million in January 2009 to 1,150 million in July 2013.

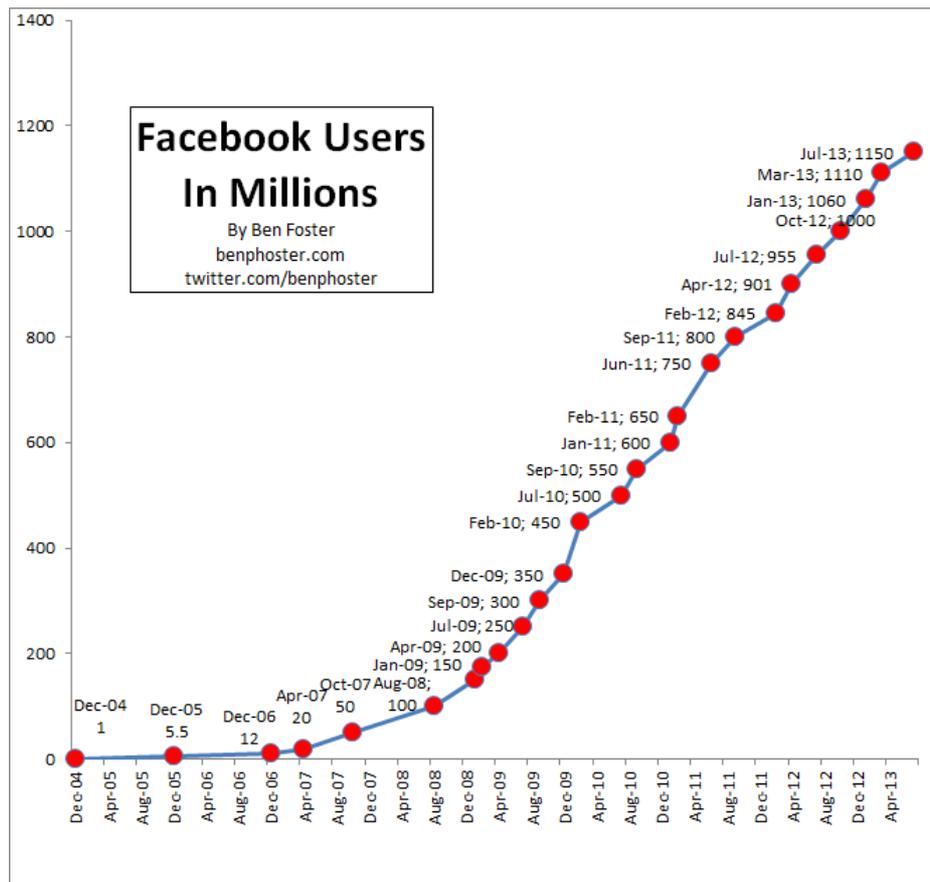


Figure 13: Facebook growth (Foster, 2012)

More recently, as Zywicki, Richards, and Gomez (2011) report, research has begun to focus on using SNSs as learning tools, driven largely by Facebook, the largest single SNS on the Internet.

2.17 Facebook

Facebook, which started in 2004, had 1.19 billion monthly active users as of September 30, 2013 (Facebook, 2013d) making it the largest single website, according to membership, on

the World Wide Web. According to Alexa.com, which ranks website activity, Facebook is currently the second most active site on the Internet after Google.com. According to World Wide Worx's "SA Social Media Landscape 2014" Facebook has similar levels of usage in South Africa with 9.4 million active users in South Africa (worldwideworx.com, 2013). This represents approximately one in five of the South African population, which considering this does not include other SNS usage, is similar to the "one in four" statistic for SNS usage around the world (eMarketer).

The impact of the growth in Facebook is reflected in the recently increasing interest in Facebook's use for education. In 2010 de Villiers (2010) reported that there "is a low level of use of Facebook for academic purposes in the South African academic community" (p. 175). However more recently, in 2012, Rambe (2012) indicated that Facebook is increasingly being used in South Africa by users "for the exchange of resource and informal learning" (p. 295). However, the key issue here is what "for academic purposes or informal learning" means. Examining other research (both in South Africa and internationally) on the usage of Facebook shows that this seems to mainly imply the use of Facebook as a communication system for information exchange around learning, rather than as a formal learning environment.

Selwyn (2009) reported that Facebook was mainly being used to critique (post-hoc) learning experiences, or to simply exchange academic and practical information. He concludes that rather than being used as a learning platform, Facebook played more of a role around "the 'identity politics' of being a student" and working through relationships with other students and teaching staff (Selwyn, 2009, p. 157). de Villiers (2010) suggests that "SNS can be used educationally to support communication between students in the same learning situations and also for educator-learner dialogue" (p. 175). Q. Wang, et al. (2012) concur in their research where they report that only about 10% of students use Facebook for academic work with less than 1% using it to contact academic staff. Likewise Moore (2010) also reported a rising use of Facebook, amongst other SNSs, at South African universities, however the main usage was around sharing of information rather than any formal learning. Other studies (Q. Wang, et al., 2012) have considered the impact that Facebook has on student motivation and how it has

improved student perception of teaching staff, either through making the staff more accessible or being able to engage less formally with lecturers.

So while there appears to be a move towards using Facebook for learning, the focus has been on Facebook's support for open discussion while the role of learning is still largely supported by official university learning management systems such as Moodle (Rambe, 2012). This led Rambe (2012) to conclude that Facebook is "about artefact sharing, academic networking and relationship building" (p. 299).

As such, Facebook usage by universities, and research into Facebook usage, has centred around issues of networking, relationships, motivation etc. and not on learning per se. In fact some studies have suggested that teachers should remain passive, rather than active when interacting with students on Facebook (Teclehaimanot & Torey, 2011).

This focus on non-learning activities resonates with the mission of environments such as Facebook, which are to share and connect, rather than to learn. Secondly it is driven by university concerns over privacy, control, etc. within SNS environments that are outside of the institution's control. Thirdly as Mott (2010) argues, LMSs have "become central to the business of colleges and universities...(and have) become a symbol of the higher learning status quo" (para. 2). Replacing well-established LMSs such as Moodle or Blackboard could impact this impression. Lastly the role of technology-supported learning is often already deemed as being met through existing institutional LMSs (Rambe, 2012). All of this makes the crossing of the paradigmatic divide to using a not-designed-for-learning environment to support formal learning, a difficult move.

However, some recent studies have begun to tentatively consider Facebook and learning by comparing the use of Facebook for learning with traditional LMSs, thereby not necessitating the need to completely let go of institutional LMSs. Schroeder and Greenbowe (2009) compared Facebook to WebCT (an institutional LMS) and found that the Facebook users posted four times more often than the WebCT users. A suggested reason for this was that students spent more time in Facebook and therefore interacted more with the material.

DeSchryver, Mishra, Koehler, and Francis (2009) conducted a similar study comparing

Facebook with Moodle and found that their students posted more often in Moodle than Facebook. They suggested that this might have been because the students did not like having separate discussions outside of the main course system (Moodle).

This tentative research into the usage of Facebook as a learning environment is illustrated in Madge, Meek, Wellens, and Hooley's (2009) study. In this study they report that their research indicated "students thought Facebook was used most importantly for social reasons, not for formal teaching purposes" (p. 12). However their results indicate that 53% of the students were in fact positive about using Facebook for learning. They conclude by saying "However, 53% of respondents did reply positively about the use of Facebook for formal teaching and learning purposes" (Madge, et al., 2009, p. 15 e.a.). They then list some of the students' suggestions but conclude that "many of the functions suggested are already available within the University's Virtual Learning Environment but there is *perhaps* merit in exploring the links and synergies between the two systems" (Madge, et al., 2009, p. 15 e.a.). There appears to almost be a reluctance regarding the findings, where they start with "however" and then interpret 53% agreeing with Facebook's use for formal teaching as indicating their choice "not (to use Facebook) for formal teaching purposes". Additionally they seem to imply that there would be little merit in using Facebook for learning because what the students suggest could be done with Facebook is already fulfilled by the institutional VLE. As with the previous comparative studies, there appears to be a reluctance to explore Facebook as a learning environment, or alternatively a difficulty in making the paradigmatic jump to using this non-learning space for formal learning.

2.18 Facebook Groups and Pages

Despite these tentative forays into using and researching Facebook as a learning environment, the last few years have started to see some studies exploring the use of Facebook as a learning environment, and not merely as an informal communication channel. Facebook contains a number of spaces that can be used to support learning, but two of the main spaces are Groups and Pages. The difference between them, as described by Facebook (Facebook, 2013c) are that "Pages allow real organisations, businesses, celebrities and brands to communicate broadly with people...(while) Groups provide a closed space for small groups

of people to communicate about shared interests" (para. 1). In addition to this there are several key differences between Pages and Groups around membership and privacy.

Firstly Page posts are public while Group posts can be made secret. Secondly anyone can Like (and therefore become a member) of a Page, while Group membership is controlled. Thirdly posts from a Page appear in the news feed of all people who are members of the Page, and hence are also visible to their friends, while Group notifications are private.

This would seem to indicate that Groups appear to be the most obvious space to use for learning within Facebook because they provide control over members and privacy plus they also have a facility to upload and store documents. In fact Facebook, themselves, recently created "Groups for Schools" as a push towards using Groups for education (Facebook, 2013b). All of these Group features are features that traditional LMSs provide, and hence it would be reasonable to expect to use Groups as a learning environment. This has led to several recent studies exploring learning within Facebook Groups (de Villiers, 2010; Hurt, et al., 2012; Loving & Ochoa, 2011; Rambe & Ng'ambi, 2011; Q. Wang, et al., 2012).

However Facebook Pages, while not specifically designed for learning, provide a host of potentially interesting affordances for learning environments. These include the ability to create multiple administrators, where all administrators post under a generic page name (hence anonymity), the ability to add external applications, the ability to allow (or disallow) activity to appear on members' walls, etc. These, and other affordances of Pages, are more representative of Facebook's mission to "make the world more open and connected" (Facebook, 2013d para. 1).

So while Groups allow for closed control and hence intuitively fit the models of most learning institutions, Pages reflect the open and connected nature of SNSs in general and the current shift in online engagement to being more open. Additionally Pages potentially represent a paradigmatic departure, as discussed above, towards using not-designed-for-learning spaces to support formal learning. As such Pages may provide potentially interesting insights into learning within an open and connected environment.

Some recent research (Irwin, Ball, & Desbrow, 2012; McCarthy, 2013) has begun to consider Facebook Pages and their use for learning, but these studies have not used Facebook Pages to explore a democratised learning environment, where all students are given administrator privileges. This privilege (that will be discussed in more detail in the findings) not only brings with it various power affordances, such as controlling members, Page design and adding applications, but it also provides anonymity to posters, and hence opportunities to explore fundamental power paradigmatic shifts.

de Villiers (2010) says her research into Facebook Groups "represents early research on the use of Groups for focused academic purposes" (p. 176), likewise the purpose of this research is to represent early research into the affordances (discussed in next chapter) of using a Facebook Page for focused academic purposes.

2.19 Facebook research approaches

The previous section outlined the two main spaces within Facebook (Groups and Pages) that can be used to support learning. This section will explore some of the recent research that has taken place with Facebook, and the approaches taken to explore a Facebook learning environment. The first studies cluster around survey-based approaches, while the second group of studies attempt to explore how learning takes place through focus groups and transcript analyses.

2.19.1 Survey-based Facebook research

While Facebook was not the primary learning environment, Hurt, et al. (2012) did focus on the use of Facebook to support online academic discussions, where these discussions are viewed as "an important element of many college courses." They were specifically interested in comparing student engagement in a web-based environment (Facebook) with the university LMS and exploring if academic discussions could take place in these non-academic sites.

Hurt, et al. (2012) made use of what they refer to as a quasi-experimental design that involved testing the use of their institutional LMS and Facebook within and between two

courses. The instructors on the courses then posted a weekly prompt to initiate the online discussions but remained out of the discussions thereafter. Their data collection was via two surveys, a pre-course and post-course survey. Both surveys measured the students' preferences, attitudes and perceptions of learning in the discussion spaces.

Hurt, et al. (2012) found that while discussion is viewed as a key element of learning, students were initially reticent about using online discussions spaces. They reported that online discussions were likely to be impacted by slow or stagnant conversations, disjointed comment threads, a lack of familiarity of the institutional discussion platform. Their findings supported previous research (Christofides, Muise, & Desmarais, 2009; Irwin, et al., 2012 ; Jucevičienė & Valinevičienė, 2010) that found that due to the high usage rates of Facebook amongst students there is an “unparalleled level of comfort and convenience” (Hurt, et al., 2012, p. 14). They found that students who were frustrated with the university LMS due to its “unnatural trajectory of online conversations and the cumbersome task of contributing” (p. 14) were excited about using Facebook for conversations (Hurt, et al., 2012).

However, while they found that there was a significant positive shift in student opinions towards the use of Facebook as an online discussion space, as opposed to the LMS, they did not get the same results for both courses. The suggestion was that this may have been due to the different levels of lecturer involvement in the conversations between the courses or alternatively it could point to the suitability (or not) of the course content for discussion (Hurt, et al., 2012).

Hurt, et al. (2012) conclude that the “data suggested that Facebook could be used effectively for academic discussions” (p. 18). However, their approach did not try and explore the nature of how the students engaged in the discussion, the number of posts, or the types of posts that initiated comment, or how many posts were on topic, etc.

Q. Wang, et al. (2012) undertook a similar study to Hurt, et al. (2012) by attempting to use a Facebook Group as a LMS. They used the Group to put up announcements, share course resources, organise tutorial sessions, conduct online discussions, and handle other administrative matters. They found that a Facebook Group could be used to replace an

institutional LMS and that students were generally satisfied with using the Group. However a Facebook Group does not support all the file formats of the institutional LMS.

This research, much like Hurt, et al's. (2012), does not attempt to explore how learning takes place in Facebook but rather whether Facebook can be used as "an LMS substitute or supplement" (Q. Wang, et al., 2012, p. 429). Similar research was also conducted by Lampe, Wohn, Vitak, Ellison, and Wash (2011) where they looked at how Facebook can be used for organising collaborative classroom activities and Loving and Ochoa (2011) who looked at Facebook as a classroom management solution.

Irwin, et al. (2012) also examined students' perceptions of the use of Facebook for learning via the use of questionnaires. However while Hurt, et al. (2012) and Q. Wang, et al. (2012) used Groups, Irwin, et al. (2012) state that they created four Facebook Pages for their courses. Also, Irwin, et al. (2012) did not set out to use Facebook specifically to initiate learning through discussion, but rather as a platform to "provide information relevant to the courses and to allow opportunities for student networking to occur" (p. 1221). This is important, as the focus is more on the use of Facebook as a platform for information dissemination, or as a tool, rather than specifically for learning. Irwin, et al. (2012) state that the purpose of the "investigation was to examine the use of course-specific 'Facebook pages' ...and evaluate its efficacy as a course learning tool using student perceptions" (p. 1228).

Irwin, et al. (2012) found that the main benefit reported by the students was the ease of access to information through Facebook because it was a space they frequented, supported by the fact that most students on the course Liked (joined) the Facebook Page. However they found that only half of the students indicated that a Facebook Page was effective for learning. They suggested this might have been due to the instructors not being able to maintain "momentum with Facebook page activities that had been initiated" (p. 1229) or the fact that a Page was used and not a Group. They conclude by suggesting that "further research is required to specifically understand if and how the use of Facebook can enhance student learning outcomes" (Irwin, et al., 2012, p. 1230).

These studies, while making use of Groups and Pages, focused mainly on students' perceptions as measured through the use of questionnaires. Additionally they focused predominantly on the use of Facebook as an alternative to an institutional LMS, with the focus being on administration and information dissemination. The next group of studies move into exploring Facebook, not simply as an alternative to an LMS or as an information dissemination platform, but rather how Facebook can be used as a learning environment. These studies also make use of more qualitative approaches to understanding the student learning experience.

2.19.2 Qualitative-based Facebook research

de Villiers (2010), like most of the previous studies using Facebook, makes use of a Group to explore learning. Rather than using surveys, which most of the previous studies employed, she analysed the textual interactions within the Facebook Group. This analysis revealed that the “discussions centred around aspects of the module that are less clear-cut or that involved additional reading” (de Villiers, 2010, p. 187).

She observed that the discussions were “insightful contributions” and not merely platitudes. In addition to the learning taking place through the conversation, she found that there was a range of opinions on the role of the instructor in the space. Some felt the instructor should take more control, with some suggesting the instructor quality control all posts. de Villiers (2010) argues that “learner-empowerment is part of the experience” and hence she took a “sage on the side” role rather than a “sage on the stage” role (p. 188). She concludes by saying that issues of “inadequacy about posting contributions” and the roles of the Group members still need further exploration.

Pimmer, Linxen, and Gröhbiel (2012) also explored how learning takes place in Facebook but they made use of both focus groups and an analysis of the activity of the Facebook Page. Similar to de Villiers (2010) they found that there were “explicit forms of educational content embedded in informal learning contexts in Facebook” (Pimmer, et al., 2012, p. 726). This included the use of quizzes, case presentations and other e-learning practices that are normally associated with formal educational environments. While Hurt, et al. (2012) and

Irwin, et al. (2012) focused more on the “discussion” aspect, Pimmer, Linxen, and Gröhbiel’s (2012) analysis of the focus group, and the Facebook site itself, revealed the following two deliberate learning practices.

Firstly, the use of Facebook’s wall, which allows posts and comments, to engage in quiz questions where students would pose a question and then engage in dialogue around the question. Secondly, the use of the post-comment feature of Facebook to share short case studies and thereby initiate discussion around the case content.

In addition to their findings around the use of Facebook for “formal” learning they also found that the environment impacted identity and provided opportunities to both announce and negotiate identity (Pimmer, et al., 2012). Similar to both Hurt, et al. (2012) and Irwin, et al. (2012), they also found high levels of engagement with the Facebook site, reporting that within “the last 7 days there was a total of 1750 interactions on the site” (Pimmer, et al., 2012, p. 735).

Interestingly, while the study initially, through the first focus group, set out to explore the use of technology for learning, working and leisure, the researchers discovered the unanticipated use of SNSs and mobile phones for learning. This then resulted in a focus specifically on Facebook as a tool for learning. Pimmer, et al. (2012) conclude that educational institutions are no longer the gatekeepers of formal knowledge and that Facebook provides opportunities to explore learning in more detail and specifically issues of “power in terms of structuring interactions...(that) appeared not to be equally distributed across the users” (p. 738). Like de Villiers’ (2010) signalling of the power/role issues in Facebook, Pimmer, et al. (2012) also highlight the need to explore the intricately related issues of power and learning.

Rambe (2012) in his research into the use of Facebook for collaborative engagement picks up on this issue of power. Using a critical discourse analysis of Facebook posts, he explores the academic relations between lecturers and students in a first year Information systems course. While the course material was presented via lectures and an institutional LMS, a Facebook Group was set up to provide a consultation space.

Rambe (2012) found that Facebook revealed the students shallow approaches to learning, like their reliance just on the textbook or lecturer support. He found that the students did not “strategically harness Facebook discussion threads as information repositories for tracking the evolution of discussions, hence the tendency to repeat queries and responses” (Rambe, 2012, p. 306). Also in terms of the power discourse he found that despite the neutrality of a Facebook environment, the lecturer was still perceived as the authoritative voice. He argued that “Facebook sometimes reproduced and entrenched hierarchical power relations between students” in addition to those between students and lecturers (Rambe, 2012, p. 307).

However, due to the informal nature of the language used within Facebook, he found that this did appear to give the students more voice to ask questions and express opinions. Additionally he found that “students gained confidence in posting questions as they realised that they were not the only ones with problems” (Rambe, 2012, p. 309) thereby encouraging discussion and conversation which might not have existed in a more formal or offline environment.

Arising out of these studies are some key issues for this study. Firstly is the importance of not simply measuring student perceptions but attempting to understand *how* students engage and learn in Facebook. Secondly, while a variety of research approaches were taken, attempts to understand how learning takes place in Facebook seem to be best served by exploring student understanding through focus group discussions, in addition to also analysing the content of the Facebook space. Thirdly, as highlighted by de Villiers (2010) and Rambe (2012) is the need to not only consider learning in isolation but also the power discourses that are at play in this new flattened learning environment. The impact of the these issues on the design of this research will be discussed in more detail in Chapter 4 (Research Methodology).

2.20 Conclusion

Not only are learning environments changing rapidly, but so to are concepts and definitions of learning. The last century has been defined by learning that emerged from artefact-based approaches where theories were based on outcomes and process as reflected primarily in Behaviourist and Cognitivist paradigms. Yet even though newer paradigms such as

Constructivism have argued for socially embedded approaches, most university courses are still delivered and assessed in ways that reflect underlying behaviourist paradigms.

A new theorisation of learning, around networked connectivist principles, called Connectivism has emerged, in an attempt to address learning in the digital age. This theory argues that learning needs to be viewed, not simply adapted, in a technological light. Connectivism argues that learning takes place both internally in the minds of learners and externally in connected knowledge networks, and that learning is the process of making sense of knowledge through networked engagement. By exploring the differences between Traditional Learning Approaches and Emerging Learning Approaches across 7-dimensions, a definition of learning, based on connectivist principles was developed. This definition of learning, unlike previous Behaviourist or Cognitivist-based definitions, views learning in terms of the process, outcomes, and where it takes place, and the role of the learner (who). As such learning is rooted deeply in networked engagement rather than in positivist-based views of outcomes.

Learning theories and e-learning environments have evolved as they reflect and impact prevailing societal and technological changes. Most notable amongst these are the recent developments in e-learning environments that have moved through Type 1 product-focused environments, to Type 2 place-focused environments, to Type 3 people-focused environments. However there appears to be yet another movement taking place, as even these three e-learning environments are being challenged by not-designed-for-learning environments arising out of the Web 2.0 wave of technologies.

Most notable amongst these has been SNSs, which have come to dominate Internet usage through sites such as Facebook, YouTube, Google+, LinkedIn, and many others. Yet out of all of these Facebook represents the most active website on the Internet today. With over one billion users it is becoming increasingly difficult to ignore the impact, both positive and negative, that Facebook is having on society. This has led to a rise in research in a number of areas, but more recently, in Facebook's use for education.

Coughlan (2009) argues that "any technology that is able to captivate so many students for so much time not only carries implications for how those students view the world but also offers an opportunity for educators to understand the elements of social networking that students find so compelling and to incorporate those elements into teaching and learning" (para. 4). This sentiment has been more recently reiterated by Q. Wang, et al. (2012) where they say that "Facebook has become one of the most prominent SNSs...(and) seems to offer great potentials for teaching and learning as many students are using Facebook daily" (p. 429).

Yet despite these observations, little research has taken place into how Facebook can be used for education, with most research focusing on comparative studies or the use of Facebook as a communication tool. This has led to more calls to fill the void in our understanding where "empirical evidence on the use of such sites for formal online learning is (still) scant" (Veletsianos & Navarrete, 2012, p. 1). As Rambe (2012) argues, that despite the apparent interest in Facebook "in academia, there is still a limited grasp of the discourses that unfold on this SNS" (p. 295).

Facebook appears to offer interesting opportunities to explore learning within a new technologically mediated space. This space affords multiple learning, power and other affordances for learning. However as Rambe and Ng'ambi (2011) point out, there is a need to guard against "technopositivism" by acknowledging that the emphasis is not on the technology, but on using it as a means to understanding learning. Multiple negative issues of using SNSs and Facebook in particular have received a lot of attention both in the press and in research over the past few years. These include issues of distraction (Kirschner & Karpinski, 2010), privacy and the separation between the student's learning-life and private life (Hew, 2011), and negativity from some students on using a SNS for learning (Madge, et al., 2009).

While the advantages and disadvantages of using Facebook for learning, or comparing Facebook to other LMSs might be attractive, and have been pursued by some researchers, my focus will be on the affordances of learning in a Facebook environment. This is significantly different as the focus is not comparative, neither is it evaluative of Facebook's features, but rather it focuses on the action opportunities of using an environment that potentially requires

a paradigmatic shift, both for student and lecturer alike. The next chapter will discuss affordance theory as the theoretical framework informing this research.

3 Affordance Theory

“It is the theory which decides what can be observed” (Albert Einstein)

3.1 Introduction

Selecting a theoretical framing for this research requires not only a framework that provides a useful lens for observing the data, but also a framework that supports and resonates with the underlying critical paradigm. A resonance between paradigm, framework, methodology and ultimately representation lends both authenticity to the research and consistency to the approach².

Before outlining the background to affordance theory it is necessary to first situate affordance theory within the overall context of the research. As already discussed, this research is framed within a critical paradigmatic orientation. The essence of critical theory revolves around change (action) as indicated by Thomas (2003); “The act of critique implies that, by thinking about and then acting upon the world, we are able to change our subjective interpretations and objective conditions” (p. 47). Or as Madison (2011) suggests it is about overcoming (action); “critical theory model, in which social life is represented and analysed for the political purpose of overcoming social oppression” (p. 6). This action focus of critical theory resonates with the action possibility lens provided by affordance theory, as discussed below.

Researchers have brought a range of theoretical lenses to bear on research related to Social Networks and Facebook, such as Activity Theory (Rambe & Ng'ambi, 2011), Communities of Practice (Williams, et al., 2011), and Affinity Spaces (Lammers, Curwood, & Magnifico, 2012). While all of these provide useful perspectives into interaction and design issues, this research will use affordance theory with its focus on action possibilities.

Studies in e-learning environments take one of three (or a combination of) perspectives, *viz.* a focus on social/participants, a focus on design/technology, or a focus on use/learning. While

² The alignment and resonance of these elements is discussed in more detail in the reflexion (see Chapter 8).

this study looks at all three of these aspects to some extent - students (participants), Facebook (technology), it is primarily focused on learning (use). As such affordance theory, with its focus on use/action opportunities, provides a useful lens to foreground learning within the Facebook environment. In addition to this action opportunity focus, affordances are “a helpful way to conceive of the generative mechanisms associated with technical artefacts” (Volkoff & Strong, 2013, p. 822), and as such provide an insight, not simply into feature sets, but underlying generative mechanisms impacting student use within Facebook. The next section will now consider in more detail the history of affordances and then the changing meaning of affordances.

3.2 Affordance Theory

“Facebook features are designed to trigger social behaviour, not create it...Facebook and Twitter aren’t social software systems, they are systems that afford certain social behaviour” (Appleseed, 2013 para. 1). Observing how learning takes place in a physical and social environment, such as Facebook, requires a lens that allows more than a simple feature-based view of the environment, but rather one that provides an insight into determining how the environment affords learning. “The concept of affordance attempts to do this work, but how it may be understood to do so does not go uncontested” (Parchoma, 2013, p. 2). In order to understand how affordance theory can be applied to this study of learning in Facebook, it is necessary to firstly outline the history of affordances and then to present a reframing of affordance theory that can be applied in this research.

3.3 History of Affordances

The term affordance was introduced by James Gibson in 1977 in his article “The Theory of Affordances” (J. Gibson, 1977) and then expounded in more detail in his later work where he framed it as an “ecological approach” to perception (J. J. Gibson, 1979) and later in his wife, Eleanor Gibson’s work (E. J. Gibson, 1982, 1988). Developed out of his desire to understand visual perception, he theorised the concept of an affordance. For Gibson (1977) affordances were the action possibilities existing in an environment. “The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either good or ill. The verb to

afford is found in the dictionary, but the noun *affordances* is not. I have made it up. I mean by it something that refers to both the environment and the animal in a way that no existing term does. It implies the complementarity of the animal and the environment” (J. J. Gibson, 1979, p. 127). For example a surface that is horizontal, flat, extended and rigid has a support affordance as animals can walk, stand or run on it.

However affordances offered do not necessarily equate to affordances acted upon or even affordances perceived. This is firstly a factor of the physical characteristics of the animal/person. For example while a stepladder affords climbing and hence reaching something up high, this is not an affordance for a baby. Equally a leafy thorn tree may afford food for a giraffe equipped with both a long neck and dexterous tongue, but not so for many smaller antelope.

Secondly, affordances are, according to Norman (1988), also a factor of a person’s culture, social setting and experience (Gaver, 1991). This is classically displayed in the movie “The God’s must be crazy” (Uys, 1984) where a Coke bottle discarded from a light aircraft is discovered by a bushman. For the Ju/'hoansi Bushman (Figure 14), the affordances of the bottle are not related to holding liquid for drinking, but for curing snake skin, making music, creating circular stamps, crushing corn, etc.



Figure 14: Coke bottle affordances (Uys, 1984)

“Xi tried the thing out to cure thongs. It had the right shape and weight. It was also beautifully smooth and ideal for curing snakeskin. And Pabo discovered you could make music on it. And every day they discovered a new use for the thing. It was harder and heavier and smoother than anything they'd ever known. It was the most useful thing the gods had ever given them. A real labour-saving device” (Uys, 1984).

Developing on this, the next major development of the term was when Donald Norman (1988) appropriated the term into the context of human-computer interaction (HCI). Norman (2002) defined an affordance as “the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used” (p. 9). Norman (1999) was concerned with what people saw rather than simply what an environment afforded. So while affordances, according to Gibson (1977), were latent within the environment, Norman (1999) argued that if these were not perceived they could not be classed as an affordance because they could not be acted upon. So while Gibson’s original concept of affordances emerged out of visual perception, Norman’s affordances were grounded in HCI and particularly design elements of online spaces.

Initially it seemed as though the concept was the same with just minor adjustments being made, but it soon became apparent that Gibson and Norman’s conceptualisations of affordances were different. A Gibsonian affordance is one of action possibilities, while Norman’s affordance is more about users’ perceptions of action possibilities. A Gibsonian affordance is independent of the actor, and hence the actor’s experience and culture have no impact on the affordance. A Normanian affordance, however, is linked to the actor’s past experience, knowledge, culture, etc. “The frame of reference for Gibson is the action capabilities of the actor, whereas for Norman it is the mental and perceptual capabilities of the actor” (McGrenere & Ho, 2000, p. 2).

For Norman it is about perception, and this perception creates affordances that become real, whether they were objective/actual affordances of the object/design or not. “It’s very important to distinguish real from perceived affordances. Design is about both, but the perceived affordances are what determine usability. I didn’t make this point sufficiently clear

in my book and I have spent much time trying to clarify the now widespread misuse of the term” (Norman, 1999, p. 124).

This move by Norman, and others, resulted in a wide range of uses in the term affordance, ranging from what might be considered Normanian affordances, to Gibsonian affordances, to something else, as depicted by the following selection of phrases from various authors.

Gibsonian Affordances

- “The affordances of the environment are what it offers...provides...furnishes” (J. J. Gibson, 1979, p. 127)
- “we define affordances as the potential for behaviours” (Volkoff & Strong, 2013, p. 823)
- “Gibson intended an affordance to mean an action possibility available” (McGrenere & Ho, 2000, p. 1)
- “Potentials for action” (Gaver, 1991, p. 1)
- “affordances are properties of the world that make possible some action” (Gaver, 1991, p. 2)
- ”Affordances are behavioural meanings, they are signs to an organism that actions are possible” (Pickering, 2007, p. 72)

Normanian Affordances

- “the perceived and actual properties of the thing” (Norman, 2002, p. 9)
- “fundamental properties that determine just how the thing could possibly be used” (Norman, 2002, p. 9)
- “both actual and perceived properties ” (Soegaard, 2003)
- “primarily those functional properties that determine just how the thing could possibly be used” (Pea, 1993, p. 51)
- “ a perceived suggestion” (McGrenere & Ho, 2000, p. 4)

Something else

- “An affordance is a property of the relationship, and was defined as an opportunity for action” (Volkoff & Strong, 2013, p. 822)
- “Affordances imply the complementarity of the acting organism and the acted-upon environment” (Gaver, 1991, p. 2)
- “ all of this functionality is mapped onto a single affordance on the dashboard” (Mohageg et al., 1996, as cited in McGrenere & Ho, 2000, p. 5)
- “We are currently evaluating the affordance and socialness of this system through its actual use in our office” (Tamura & Bannai, 1996, p. 132)

While there appear to be two major views, even within these two views there is a range of understandings represented by the multiplicity of phrases used to define affordances. For example Gibsonian affordances are referred to with terms such as “offers”, “opportunities for action”, “potential for behaviours”, “action possibility”, “properties of the world” and so on. Normanian affordances are referred to with terms such as “fundamental properties”, “perceived suggestion”, “perceived properties” and so on. In addition to the two main understandings of affordances, there are also a plethora of other definitions that add more confusion to the issue. However, as will be discussed later, it is within this grouping that a new direction for understanding and using affordances exists.

This diverse range of definitions of affordances has led to critiques, such as that levelled by Oliver (2005), who feels affordances should not be used. It has also led to debates around the use of the term such as the three papers appearing in the journal *ALT-J* (Boyle & Cook, 2004; Conole & Dyke, 2004a, 2004b). However despite this, affordances are still widely used because they provide a useful way to describe the “complex and dynamic co-evolving relationship between technologies and users” (Conole, 2012, p. 98).

Various attempts have been made to bring clarity to affordance theory because of the usefulness of this framework for understanding interactions between users and technology. McGrenere and Ho (2000, p. 3) attempt to illustrate the differences between the two major views as is shown in Figure 15 below.

<p>Gibson's Affordances</p> <ul style="list-style-type: none"> • Offerings or action possibilities in the environment in relation to the action capabilities of an actor • Independent of the actor's experience, knowledge, culture, or ability to perceive • Existence is binary – an affordance exists or it does not exist
<p>Norman's Affordances</p> <ul style="list-style-type: none"> • Perceived properties that may or may not actually exist • Suggestions or clues as to how to use the properties • Can be dependent on the experience, knowledge, or culture of the actor • Can make an action difficult or easy

Figure 15: Gibson-Norman Affordance Comparison (McGrenere & Ho, 2000)

Soegaard (2003) suggested a simpler understanding, that Gibson's Affordances are more about the utility/usefulness of an object whereas Norman's Affordances are more about the usability of the object. This is not surprising in that Gibson's point of departure was visual perception and what objects communicate, whereas Norman's point of departure was HCI and what users perceive when they use objects.

However this still does not really make clear what an affordance actually is and how it should be determined. One of the most useful attempts to date to bring clarity was presented by Gaver (1991) where he suggested that the divide is one between utility/usefulness and usability. He attempts to explain this by mapping an affordance to perceptual information, as shown in Figure 16 below.

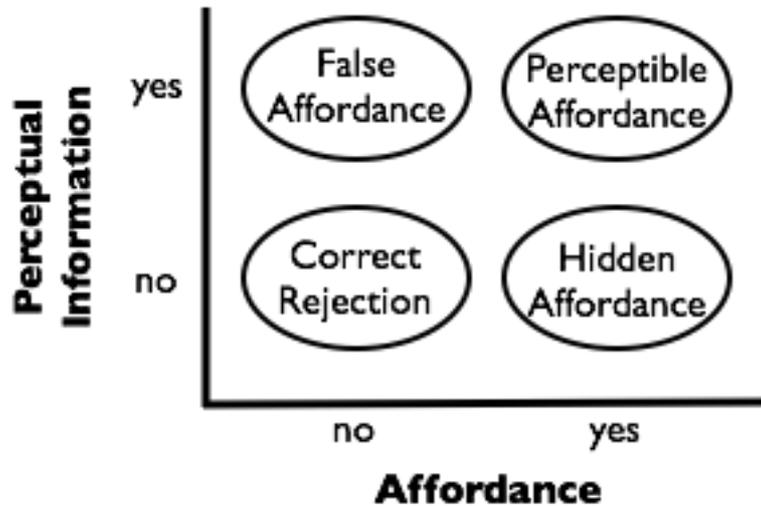


Figure 16: Affordance Categorisation (Gaver, 1991)

While this is useful for showing that there are False Affordances and Hidden Affordances, it still does not sufficiently explain the so-called “Perceptible Affordance”. This is after all what is being discussed, and confusingly and inconsistently applied. What is required is a reframing of the “over-simplified black boxes” of affordances (Wright & Parchoma, 2011, p. 256). The next section considers such a reframing.

3.4 Reframing Affordances - The Three Movements

The somewhat confusing history of affordances has led some such as Oliver (2005) to suggest abandoning the theory because of the apparent confusion and lack of clarity in its use. However as Sanders (1997) argues, just because there are ontological issues about whether the colour blue exists or does not exist, has not caused us to abandon colours, so too the usefulness of affordance theory should not be abandoned simply because we have not yet clearly framed it within an appropriate ontological understanding.

As several researchers have suggested (Parchoma, 2013; Sanders, 1997; Turvey, 1992), the best place to begin unravelling the confusing and often conflicting definitions and uses of affordances is by exploring the contested ontology of affordances. However, ontology does not stand alone in its role within the development (and confusion) of affordance theory, but so too do views on object-subject perspective, object-subject causality, and philosophical

paradigm. As such it is possible to frame the various movements of affordance theory in terms of the following four dimensions (see Table 4).

Perspective	Object	Subject
Causality	Object->Subject	Subject->Object
Ontology	Realist	Relativist
Philisophical Paradigm	Positivist	Interpretivist

Table 4: Affordance Movement Dimensions

These four dimensions will be used to position affordance theory within three paradigmatic movements. The concept of “movements” is used to reflect the moves that have taken place between the ends of paradigmatic continuums, bounded largely by object-subject extremes.

3.4.1 Affordance Movement 1 - Object Affordances

The first movement is named Object Affordances, because of its object perspective and causality. This movement, as described originally by Gibson (1977) is grounded in a positivist ontology (Parchoma, 2013) that suggests the objective and inherent affordances offered by an environment to the actor (Oliver, 2005). In this sense the affordances are more about the objective environment than the subjective perceptions of the individual and the predominant causality is that of the object to the subject. Ontologically, affordances are real possibilities for action that reside in objects or the environment. Interestingly, it is this realist ontology that remains as the single unchanging dimension across the three movements, and also the axial point of contention and confusion.

The first affordance movement, as depicted in Table 5 below, is therefore defined by an object-centric perspective, an object→subject causality, a realist ontology, and a positivist paradigm.

Movement 1

Perspective	Object	Subject
Causality	Object->Subject	Subject->Object
Ontology	Realist	Relativist
Philisophical Paradigm	Positivist	Interpretivist

Table 5: Affordance Movement 1

Movement 1, Object Affordances, can therefore be defined as latent cues in the environments and other real objects that offer action possibilities to actors. As such Object Affordances are defined as action possibilities, represented by verbal nouns, arising as offers, existing in the environment, and are independent of the actor (see Table 6).

1 - Object Affordance
Action possibilities
Verbal Noun
Offers
Environmental
Independent

Table 6: Object affordance characteristics

3.4.2 Affordance Movement 2 - Subject Affordances

The second movement is named Subject Affordances, because of its subject perspective and causality. The second movement, as primarily conceptualised by Norman (1988), saw an attempt to remain ontologically aligned with the first movement's realist perspective but at the same time frame affordances within an interpretivist paradigm, thereby creating an interpretivist-realist dilemma (Oliver, 2005). Chemero (2003) argued that this "makes affordances seem like impossible, ghostly entities, entities that no respectable scientist (or science-worshipping analytic philosopher) could have as part of their ontology" (p. 182).

While acknowledging real affordances, Norman (1988) introduced the notion of perceived affordances which initiated a movement towards a separation of real and perceived and the associated tensions (Parchoma, 2013). Unlike the first movement, this second movement is more concerned with the properties of affordances (due to the interpretivist perspective) than the affordance per se. This overlaying of property on the affordance attempts to acknowledge the realist ontology but at the same time imbue it with an interpretivist perspective (Chemero, 2003). This uncomfortable interpretivist-realist tension caused various researchers (E. S. Reed, 1996; Turvey, 1992) to try and clarify the position in terms of subject-object agency.

Rather than simply settling down in a new ontological and epistemological space, this second movement vacillates with subject-object agency issues (Oliver, 2005). The result is an uncomfortable tension in the ontological umbilical cord tethering realism to the interpretivist paradigmatic perspective.

The interpretivist paradigm takes the starting point to be human interpretation (Subject→Object). It is a “position that argues against the positivistic notion of a passive, mechanistic and reactive human being” (Chen, Shek, & Bu, 2011, p. 129). Interpretivism’s heritage is Kant’s (1797) work and the concept that ontological reality cannot be independent of what is known inside the head. As Chen, et al. (2011) point out, the goal of interpretivism “is to understand the ‘lived experience’ (Erklaren) from the standpoint of the research participant” (p. 130). Interpretivists claim that objective reality is not possible and do not agree with the positivist view that perceptions are determined by the outside world. Rather they claim that the focus should be on participants’ subjective interpretations of the outside world. This does not necessarily mean a rejection of ontological realism, and as Chen, et al. (2011, p. 133) suggest, “a number of interpretivists tend to stand close to the realist side.”

The second movement, as depicted in Table 7 below, is therefore defined by a subject-centric perspective, a subject→object causality, a realist ontology, and a interpretivist paradigm.

Movement 2

Perspective	Object	Subject
Causality	Object->Subject	Subject->Object
Ontology	Realist	Relativist
Philisophical Paradigm	Positivist	Interpretivist

Table 7: Affordance Movement 2

Movement 2, Subject Affordances, can therefore be defined as the perceived and actual properties of things that can be acted upon. As such Subject Affordances are defined as perceived properties, represented by verbal nouns, arising from perceptions of offers, seen in the properties of the environment, and are dependent on the actor (see Table 8).

1 - Object Affordance	2 - Subject Affordance
Action possibilities	Perceived properties
Verbal Noun	Verbal Noun
Offers	Perceptions
Environmental	Properties
Independent	Dependent

Table 8: Subject affordance characteristics

3.4.3 Affordance Movement 3 - Actant Affordances

For some time there have been calls for a movement away from subject-object and agency debates that have defined both the first and second movements of affordances (Sanders, 1997; Williams & Edge, 1996). However it is not until more recently that developments in social theory have provided potentially appropriate framings to make this next move.

Both Movement 1 and 2 are based on “straightforward accounts of an otherwise complex socio-technological age” (Selwyn, 2012, p. 83) which obscures the messy manifestations of what is taking place in practice, and the inherent issues with cause and effect or subject-object idealisations. Rather than oscillating between these extremes, the third affordance

movement argues for an approach that opens up the extremes by providing a new position between them. This “in between” approach, as Williams and Edge (1996) called for, is neither simple uni-directional causality nor the black boxing of the technology and actors.

One of the first steps towards the third movement of affordances was made by Schmidt (2007). He conceptualised the notion of social affordances, meaning that the social nature of objects affords particular social uses. By this he suggested that social relationships create additional environmental properties for objects. For example a cup, that affords graspability due to having a handle, might not be grasped by me because it is not mine, or might not be grasped by me because it is a sentimental ornament that is not meant to be used.

“The existence of social affordances depends upon the relationships between perceiver and environmental properties at this social scale” (Schmidt, 2007, p. 142) and as such it is important to understand how social processes “property” the environment with real properties. Schmidt (2007) concludes by saying that “social affordances of objects emerge from the relationship *between* these abstract, functionally defined properties of the perceiver and the environment” (p. 149 e.a.), hence signalling the move to “between”.

In much the same way as the second movement was a reaction to the first movement, this third movement can become a reaction to the second movement resulting in a return to first movement affordances once again. As Volkoff and Strong (2013) say there is a “renewed focus on the concept of affordances that returns us to its roots in Gibson” (p. 819). This leads him to later define affordances as that which “is offered, provided or furnished to someone or something by an object” (Volkoff & Strong, 2013, p. 819) thereby invoking the first movement definition. However, the middle ground, a ground that this third movement of affordances is attempting to claim, has real opportunities to extend the use of affordances in new ways (Wright & Parchoma, 2011) that are neither first movement object affordances or second movement subject affordances but third movement “actant” affordances.

Latour (2005) introduces the concept of actants into the object-actor discussion. He does this in order to remove the dichotomy and illustrate the equal import of the role played by both the “object” and the “actor” where both operate together to construct activity. Latour’s (2005)

actant perspective argues against the object/subject dichotomic end points in favour of a construction that takes place *between* equally active objects and actors, termed actants (Alvesson & Sköldbberg, 2009). This Latourian perspective provides a framing that finds itself comfortably between the interpretivist and positivist extremes. As Alvesson and Sköldbberg (2009) says “Latour (who) describes himself as a social constructionist...later developed in a (more) realist direction. He describes himself as being in permanent change and transformation, and provocatively refers to himself as a realist and a positivist” (p. 32).

Hence for Latour, technical artefacts play as much of a role in constructing activity as do the actors. In a sense the co-construction speaks neither to an object or subject but rather to the relationship created by the interaction of the various actants in the network. This shifts the focus to the “space between” rather than the dichotomic end points, potentially providing a response to Gaver’s (1991) suggestion of positioning affordances around the complementarity of the acting organism and the acted upon environment.

Williams and Edge (1996) refer to this middle ground as “a 'garden of forking paths' (where) different routes are available, potentially leading to different technological outcomes” (p. 866). Attempts to theorise about this messy, forking, middle ground have been made by a number of researchers, in addition to Latour (2005). Deleuze and Guattari’s (1987) rhizomes, and Pfaffenberger’s (1992) tri-dimensional relationship between society and technology also provide potential insights into the framing for this third movement of affordances. All of them speak to a multi-directional construction created and being created by multiple actants.

This third movement seeks to escape “the strict form of social constructionism...(by acknowledging that) real inanimate objects are responsible for constructing facts no less than are power-hungry humans...(so moving to occupy) a strange middle ground” (Harman, 2009, p. 11). This is the ground where both real social practices and real properties of objects interact to create affordances (Parchoma, 2013).

The third movement is therefore a framing of affordances in terms of the “in between” rather than one or other side. While carrying over elements from the second movement’s interpretivist/constructivist approach, this third movement extends the framing to embrace the

environment (technology) as an equal actor in the construction of the affordance, as espoused by the first movement. Hence this third movement elevates the role of connection in affordances between equally real and enabled actants.

So while the first movement espoused an object→subject causality and the second movement responded with a subject→object causality, the third movement steps out of these uni-directional causalities and frames itself within an actant↔actant relationship. This movement seeks to instantiate actionability to both object and subject in the Latourian sense of the Actant. This therefore removes uni-directional causality that plagues Movements 1 and 2 by replacing it with multi-directional, networked relationships between actants, whether inter-object, actor-object, object-actor, or inter-actor.

Like both movement 1 and 2, movement 3 remains true to the realist ontology. However whereas the marriage of a realist ontology with interpretivist paradigm in movement 2 creates an “inconsistency” (Oliver, 2005), Movement 3 could be said to adopt a stratified ontology as conceived in Bhaskar’s (2008a) Critical Realist paradigm. While accepting the realist ontology, Critical Realism argues for a stratified ontology where the real world is ontologically stratified into real, actual and empirical domains. So while ontologically Critical Realism has positivist roots, epistemologically it is anti-positivist (Koponen, 2009) so providing a useful framing for the third movement of affordance theory. Volkoff and Strong (2013) demonstrate how “affordances arise in the real domain from the relation between the complex assemblages of organisations and of IT artefacts, how affordances are actualised over time by organisational actors, and how these actualisations lead to the various effects we observe in the empirical domain” (p. 819).

Gibson (1979) said that he made up the noun ‘affordance’ from the verb ‘afford’; “The verb to afford is found in the dictionary, but the noun affordance is not. I have made it up” (p. 127). Gibson’s (1979) notion of what is called a verbal noun (Trask, 2006) created a structure (noun): agency (verb) tension with Gibson foregrounding the precedence of the noun (object/environment) and what it offers (verb) and Norman responding with a subject (noun) and what it perceived (verb). However the third movement seeks to preference neither the object or the subject or reductive uni-direction cause-and-effect relationships, but rather

presents affordances as actant action possibilities residing in the realm of the verbal nouns (plural). This conceptualisation is both networked and multi-directional.

The third movement, as depicted in Table 9 below, is therefore defined by an actant perspective, a networked actant↔actant causality, a stratified ontology, and a critical realist paradigm.

Movement 3			
Perspective	Object	Actant	Subject
Causality	Object->Subject	Actant<->Actant	Subject->Object
Ontology	Realist	Stratified	Relativist
Philosophical Paradigm	Positivist	Critical Realist	Interpretivist

Table 9: Affordance Movement 3

Movement 3, Actant Affordances are therefore defined as the actant opportunities that exist for action. They are the opportunities negotiated at the intersection of actants, both environmental and human. As such Actant Affordances are defined as actant action opportunities, represented by verbal nouns, arising out of interactions, existing in the network of relations, and are co-dependent on the environment and actor (see Table 10).

1 - Object Affordance	2 - Subject Affordance	3 - Actant Affordance
Action possibilities	Perceived properties	Actant action opportunities
Verbal Noun	Verbal Noun	Verbal Nouns (plural)
Offers	Perceptions	Interactions
Environmental	Properties	Network
Independent	Dependent	Co-Dependent

Table 10: Actant affordance characteristics

This implies that in addition to objects affording opportunities to actors (movement 1) or actors perceiving opportunities in objects (movement 2), there also exists the possibility of objects affording action opportunities to objects and actors to actors (see Figure 17). This

extended range of actant action opportunities indicates the widening range of opportunities through which technological affordances can be explored.

Object	Inter-Object	Real Affordance
Actor	Perceived Affordance	Inter-Actor
	Object	Actor

Figure 17: Range of Actant Affordances

“One way to visualize an affordance is thus as an ongoing strand of action potential, which is interwoven with other strands in patterns that can be explored to understand how information technology might be implicated in...(learning) as those affordance strands are actualized” (Volkoff & Strong, 2013, p. 824). Movement 3 affordances are an interwoven strand of actant action opportunities that while existing in the domain of the real will only be actualized, brought into the domain of the actual, if a user acts upon the affordance. “An affordance arises from the relation between a structure or object and a goal-directed actor or actors. It needs to be triggered or actualized by that actor. Generative mechanisms may arise from structures alone, and their causal powers triggered without the intervention of an actor. Thus, affordances are a type or subset of generative mechanisms” (Volkoff & Strong, 2013, p. 823).

3.5 Mapping Technological Affordances to the Three Movements

Technological affordances focus specifically on the use of affordance theory to understand the relationship between humans and technology. It is unsurprising that when examining the usage of affordances as applied to technology, evidence is found of positioning within all three movements. While affordances, as originally conceived by Gibson (1977) were about human perception, and ecologically based, Norman (1988) applied them to technology, instituting a move away from Gibson’s conceptualisation by focusing on the link between perception and action, and as so initiating the second movement. However this was soon followed by a call to return to the original Gibsonian concept, arguing that “as the concept of affordances is used currently, it has marginal value because it lacks specific meaning” (Boyle & Cook, 2004, p. 298). Therefore “returning to a definition close to that of Gibson’s would

solidify the concept” (McGrenere & Ho, 2000, p. 7) and so precipitate a swing back to the first movement.

At the same time Laurillard, Stratfold, Luckin, Plowman, and Taylor (2000) introduced the conversational framework which sees affordances as designed features and activities within technological environments, as such reflecting a potential move towards some middle ground. Conole and Dyke (2004b) suggested that affordances are functional properties of ICT environments, signalling a movement back towards the Normanian concept of perceived affordances and the underlying tenets of the second movement. However almost immediately there was a push back against this as Boyle and Cook (2004, p. 297) in their critique of Conole and Dyke (2004b) suggest a move towards a “new habitat” that combines Gibson’s concept of affordances (Movement 1) with the social constructivist approach (Movement 2), which they suggest will produce an “uncomfortably productive” theoretical tension (a vision of Movement 3).

Suthers (2005), in work published at a conference and later in a journal (Suthers, 2006), looked at technological affordances in terms of inter-subjectivity. While defining his use of the term affordances in terms of Norman’s perceived affordances, Parchoma (2013) argues that Suthers (2006) adopts Latourian concepts that empower technologies to be constraints or regulators. As such he signals the beginning of an alignment with the third movement of affordances seeing “technological affordances as enablers, restrictors, and regulators within human-computer interactions” (Parchoma, 2013, p. 22), a move Wright and Parchoma (2011) suggest is necessary in the evolution of affordance theory.

Technological affordance research is now entering the third movement, where research seeks to focus on the “between” or the relational view of artefacts and actors. “Technological affordances are descriptive of temporal relationships between human and technological actors within networked social environments” (Parchoma, 2013, p. 23).

3.6 Conclusion

Shifting paradigmatic perspectives have been key both to the use of, and views of affordances. Just as there is still much debate, and confusion amongst the range of philosophical paradigms on offer, so too debate and confusion continues to exist in affordance theory. However, by aligning the movements in affordances with broader movements in ontology, causality, and philosophy it is possible to not only reframe affordances but also enrich affordance theory with a new range of socio-technical perspectives that offer exciting new perspectives for exploring e-learning environments.

This chapter has outlined affordances in terms of three movements that have developed around changing paradigmatic perspectives. Using this framing it is possible to not only see what approach researchers are taking when adopting an affordance approach to research, but also it is possible to begin to chart the terrain for the third movement that appears to be underway. In an attempt to retain the realist ontology of object affordances and the perceptual influence of subject affordances, actant affordances provide a framework for exploring a multiplicity of interactions and causal pathways in human-computer environments.

Theorising a new middle ground is not for the faint hearted as Latour (2005) has endured critique from both ends where he is accused of returning to realist ontologies and at the same time accused of abandoning relativist perspectives (Harman, 2009). However, as Harman (2009) says, this middle ground is not “an eclectic compromise mixing elements of both, but marks a position of basically greater philosophical depth” (p. 12).

Affordances provide a “particularly attractive, framework for investigating salient questions about design and use of networked learning environments, despite (the) ongoing ontological debates” (Parchoma, 2013, p. 1). This research will use this new actant affordance theorisation as the framing lens to explore the use of Facebook for learning, with its focus on the space between.

4 Research Methodology

“The best laid schemes of mice and men...” Robert Burns

4.1 Introduction

A research methodology is more than simply a set of principles that guide research, it should also be based on, and reflect, the researcher’s underlying paradigmatic orientation. This paradigmatic orientation provides the overarching perspective on how the research is approached, how the participants are engaged (and referred to), and ultimately how the findings are reported. In essence the research paradigm impacts the “tone” of the research and the positionality of the researcher.

This chapter will begin by presenting the adopted paradigmatic orientation, followed by a discussion of the adopted methodology and the matching research methods. Thereafter the research design will be described, detailing the participants, ethnographic environment, and data sources. Finally the chapter will conclude with an overview of the data analysis approach.

4.2 Paradigmatic Orientation

Kuhn (1962) initiated the convention of referring to combinations of assumptions and worldviews as a paradigm. “A paradigm is thus a construct that specifies a general set of philosophical assumptions covering, for example, ontology (what is assumed to exist), epistemology (the nature of valid knowledge), ethics or axiology (what is valued or considered right), and methodology” (Mingers, 2003, p. 559).

Philosophical perspectives, often neatly categorised as Positivism, Post-Positivism, Critical Theory and Constructivism reflect changing perspectives on ontology and epistemology. Most notable are the shifting views on the nature and impact of reality from naive realism to relativism. However these shifting perspectives are far from mere philosophical musings, but also impact the researcher’s search for answers - either through an apprehendable reality of

an object world or through constructed realities of a subject world, or something in between as discussed in Chapter 3. This research methodology assemblage consists of an underlying paradigm, an espoused methodological approach, and an enacted set of methods. As a researcher, the search for answers needs to align with the researcher's paradigmatic orientation, whereby the underlying paradigm gives direction to both the methodology and methods of implementation.

4.3 The Research Methodology Assemblage

“As an assemblage, a book has only itself, in connection with other assemblages and in relation to other bodies without organs” (Deleuze & Guattari, 1987, p. 3). In the Deleuze and Guattarian sense, the research methodology may be viewed as one of the “other assemblages”. As much as the representation of this text in book form embeds various power structures³, so too does the choice and implementation of a research methodology. In addition to this, the representation of the findings in a neat, chronological fashion, guided by a neat and orderly research approach belie the messy, ateleological journey that unfolds in reality. However this assemblage, nonetheless, enables the reader to “plug in”, to borrow a phrase from Deleuze and Guattari (1987), to the underlying research process.

The assemblage of the research methodology is the connection between this representation (thesis), the field of reality (Facebook learning environment) and me as the author. “There is no longer a tripartite division between a field of reality (the world) and a field of representation (the book) and a field of subjectivity (the author). Rather, an assemblage establishes connections between certain multiplicities drawn from each of these orders, so that a book has no sequel nor the world as its object nor one or several authors as its subject” (Deleuze & Guattari, 1987, p. 4). It is the field of subjectivity that needs to be acknowledged by a researcher, because without understanding the nature of this subjectivity it is difficult to consistently approach and engage with the research. This field of subjectivity gains clarity, at least in part, through the adoption of a guiding paradigmatic orientation.

³ This is discussed in more detail in the reflexion contained in Chapter 8

4.4 The Field of subjectivity

The representation of these findings, while invoking paradigms construed as participative and critical in nature are nonetheless embedded in the philosophical perspectives of the author. As such the point of departure for this discussion needs to be a consideration of my espoused (and hopefully enacted) paradigmatic orientation, Critical theory.

Critical theory, while also largely adopting the Critical Realist ontology of Postpositivism, raises key issues around power at both the epistemological and methodological levels. Epistemologically, Critical theorists argue that the researcher and participants are intimately linked and that the methodology should not only reflect this but also seek, through open dialogue, to expose oppression and emancipate the oppressed. As Giroux (1988) quoted by Guba (1990) says, it should “uncover an excavate those forms of historical and subjugated knowledges that point to experiences of suffering, conflict, and collective struggle” (p. 110). As such Critical theory methodologies adopt approaches that are both dialogical and dialectical in nature.

Due both to the nature of the area being researched (e-learning) with its emancipative opportunities, and my own paradigmatic orientation, I intend to adopt a critical orientation for this research.

4.5 Critical Theory

“The formation of power and the formation of knowledge compose an indissoluble unity” (Habermas, 1987, p. 272). It is not only this shared sentiment that situates me within the critical paradigm, but an attempt to explore learning (“the formation of knowledge”) within a space (Facebook) that affords new opportunities for “the formation of power”.

The term “critical” was first used in Kant’s “Critique of Pure Reason” (Epperson, 2009) where he questioned the objective worldview and raised issues of relativism and the impact of space, time, and the mind on data. This was further extended by Hegel, who showed how the mind has also developed as a result of both history and culture. The influences of Kant, Hegel and also Marx impacted the Institute of Social Research, which became known as the

Frankfurt School, and out of which emerged Critical Theory as developed by Horkheimer (Horkheimer, 1972), Adorno (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950), Marcuse (Marcuse & Commune, 1968) and more recently Foucault (Foucault, 1980) and Habermas (Habermas, 1991).

“Critical theory forces sociological empiricism to interrogate its own taken-for-granted exemption from the sully interests of perspective, passion, polemic, and politics” (Agger, 1991, p. 119). As such the researcher is forced to consider not only the objective of emancipation but also his or her role, and how this may embed power and repressive actions in the research process. This is important because a “non reflective sociology ignores its own contamination by political interests in preserving the status quo” (Agger, 1991, p. 119).

Having outlined the underlying paradigmatic orientation, the next section looks at the methodological aspect of the research methodology assemblage, and explores how this aligns with the critical paradigm.

4.6 Methodological Movements

The research methodology is “a structured set of methods or techniques to assist people in undertaking research or intervention” (Mingers, 2003, p. 559). Krauss (2005) argues that “the methodology chosen depends on what one is trying to do rather than a commitment to a particular paradigm” (p. 761). However this view may encourage methodological convenience at the expense of methodological consistency, and open the researcher to incongruencies between paradigm and practice that could impact the authenticity of the findings. Conole (2010) suggests that “methodology codifies beliefs about the world...(and) the choice of methodology tends to reflect both the individual’s epistemological stance and their focus of inquiry” (p. 3). It is not a whimsical choice of convenience but rather a reflection of an individual’s “ontological vocation” (Freire, 2000) and epistemological stance. As such methodology should connect and align with the researcher’s view of reality, or the world under study, and with the representation of this view as discussed above. “Walter (2006) argues that methodology is the frame of reference for the research which is influenced

by the ‘paradigm in which our theoretical perspective is placed or developed’” (Walter, 2006, as cited in Mackenzie & Knipe, 2006, p. 5)

4.7 Moving from philosophy to methodology

While a paradigm represents a worldview, methodology seeks to codify the ontological and epistemological perspectives of the paradigm in the production and analysis of the data. It is noted that even the terms “production” and “analysis” carry etymological predilections to positivist-aligned paradigms. The Critical paradigm adopted in this research is based on the philosophical perspectives of ontological realism and epistemological relativism; as such there is the need for an appropriately aligned methodology. Several attempts have been made to align paradigms to methodology (see Guba & Lincoln, 1994; Krauss, 2005; Mackenzie & Knipe, 2006; Ponterotto, 2005) but they belie the overlapping nature of the underlying views and the variant ways methodologies can be applied. What is key in selecting a methodology is one that can be applied in a way that is consistent with the adopted paradigm, in this case critical theory. Guba and Lincoln (1994) suggest the adoption of some form of dialogic/dialectical methodology.

A critical stance is predominantly about emancipation and change through involvement with the “participants”. This would suggest that more positivist aligned approaches such as experimentation or surveys would not be suitable, at least not as the primary method. Nor would phenomenological approaches that are more aligned to a constructivist paradigm. For this reason it was decided that a form of ethnographic research, which embeds the researcher with the participants, presented the best way to both advance the critical agenda and align with the paradigmatic perspective. “In this sense, ethnography becomes the “doing”—or, better, the performance—of critical theory. To think of ethnography as critical theory in action is an interesting and productive description” (Madison, 2011, p. 13).

4.8 Ethnography

Learning does not take place in a vacuum but is situated in a space, and the space in which it takes place impacts the nature of the learning (Robinson, 2009). In terms of the study of the

usage of e-learning environments, Conole (2010) says that ethnography has been used extensively. For example, Rambe and Ng'ambi (2011) in their research on Facebook say; “Mindful of our goal to unpack how Facebook uses impacted pedagogical strategy and student learning in authentic learning contexts, we are convinced that a holistic understanding of the realities of pedagogical practice in such contexts would necessitate an ethnographic approach” (p. 69).

However, while ethnography has extensive support for its use to explore e-learning spaces, it is not aligned to a critical perspective. Ethnography, and particularly classic ethnography, has its roots in positivist paradigms (Epperson, 2009) where “the researcher seeks primarily to understand (not change) the conditions of the community being studied” (Barab, Thomas, Dodge, Squire, & Newell, 2004, p. 254). However, growing out of classical ethnography is a methodology aligned with the critical paradigm known as critical ethnography.

4.9 Critical Ethnography

Critical ethnography distinguishes itself from classic ethnography along a number of dimensions. It espouses a reflexive and critical paradigm rather than a positivist one. Its methods make use of dialogue and collaboration rather than interrogation and extraction. Importantly, unlike classic ethnography which seeks for neutrality and detachment, critical ethnography is about engagement and activism. Another key difference as noted by Epperson (2009) is the difference between classic ethnography’s “participant observation” and critical ethnography’s “observation of participation” (p. 531). Hence it is not only concerned with the actors but their activities, which aligns with the affordance theoretical framing (Chapter 3).

Much of the research in e-learning is situated within social constructivist and critical theory paradigms (Epperson, 2009) which as Sandywell (2008) explains, espouse a relativist ontology, a socially produced epistemology and “the methodological thesis that the investigation of the social construction of reality must take priority over all other methodic procedures” (p. 96). Critical Ethnography seeks to not only immerse the researcher in the space with the participants but it also seeks to transform the contexts in which the research takes place. However the paradigmatic perspectives that weight relativism over realism and

the “social construction of reality...over all other methodic procedures” (Sandywell, 2008, p. 96) are not compatible with a critical realist ethnography (May, 2002). Ontologically this view posits structures as purely the creation of actors and favours a methodological thesis that is weighted in favour of actors over structures. However the adopted paradigm seeks a balancing of both actors and structures, while giving attention to the role of both researcher and participants.

4.10 Ethnographic Movements

May (2002) describes the nature of structure in ethnography as represented by the following worldviews;

1. Durkheim’s (1982) “elementary forms” view, that sought to “use ethnographic material to tell us something wider about social life than the particular experience of those who were the subject of ethnographic studies” (May, 2002, p. 56).
2. Weber’s (1978) *Verstehende* view that adopts a nominalist position that foregrounds individuals over structures, and so while this view denies the material reality of structures, it accepts that structures have real causal effects, and hence there is a two-way causal flow between structures and actions.
3. Phenomenological ethnography as Schutz (1972) extended/interpreted Weber (1978) sees the natural ordering of the world as the result of the conceptual judgements of the mind. This view therefore suggests a uni-directional flow between structures and actions, “with structures being reduced to the status of epiphenomena of subjectivities” (May, 2002, p. 59).
4. Postmodernist ethnography questions the notions inherent in ethnography that sees the “ethnographer as a figure of authority, claiming the right to explain people’s lives from his or her singular point of view” (May, 2002, p. 60).
5. Post-postmodernist ethnography argues that for ethnography to be of any utility it must be able to posit some form of generalizable truth claims. Using a blend of the above four views, it seeks to develop a tenable yet generalisable approach. Hence it takes phenomenology’s focus on the importance of understanding subjective meanings as the basis of social action, tempers this with postmodernism’s issue about absolute claims,

while seeking to take into account Durkheim (1982) and Weber's (1978) patterning of social behaviour.

This range of ethnographic worldviews largely mirrors the paradigmatic changes that have taken place over time, especially around ontological and epistemological perspectives. The views moved from a focus on real structure (1) to more of a focus on the mediating influence of epistemology (2) to a view more aligned with constructivist paradigms of relativity over reality (3). View 4 attempts to transcend all of the previous three, in a sort of meta-view and questions the ability of an ethnographer to make comment on any of this other than simply being "authorial inventions, rather than reflections...of social reality" (May, 2002, p. 62) which May (2002) suggests is "the *reductio ad absurdum* of the postmodernist position" (p. 62). Finally view 5 seeks to find a balance between the dangers of assuming authority and the move in views on the relationship between structure and actor. May (2002) contends that this post-postmodernist view is best served by critical realism which "adopts a position that rejects the individualist voluntarism at the core of both phenomenology and postmodernism...structure and action are seen as distinct but interdependent" (p. 68).

4.11 Movement to Method

Placing this research in a methodological framing that aligns both with the espoused paradigm and the enacted methods requires both careful consideration and recursive reflection. This process is neither sequential, as often portrayed in research, or final, but one of "constant conjunction" between the real mechanisms at work beneath the surface and the events perceived through this writing.

"I believe that we need to devote equal attention to studying both the connection between methodology and epistemology and the connection between methodology and methods" (Morgan, 2007, p. 68). As Morgan (2007) suggests, the resonance lies not only between the methodology and paradigm, but also between the methods and the methodology. As he represents in Figure 18 below, the methodology is axial in its alignment with the underlying paradigms and supporting methods.

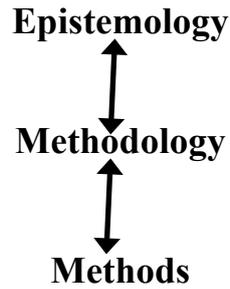


Figure 18: Placing methodology at the centre (Morgan, 2007, p. 69)

The next section discusses the methods used in this research and how they align to the critical perspective.

4.12 Matching Methods

Having outlined the underlying paradigmatic orientation this next section looks at the final element of the research methodology assemblage, *viz.* the research methods. Morgan (2007) argues for the importance of concentrating “on methodology as an area that connects issues at the abstract level of epistemology and the mechanical level of actual methods” (p. 68). This section considers the “mechanical methods” used in this research to instantiate the underlying critical ethnography. The challenge arises in applying a methodology that was designed for face-to-face contact to a computer-mediated environment such as Facebook.

The application of this real-world approach to online spaces has been contested by some (Clifford, 1997) but is receiving increasing acceptance (Androutsopoulos, 2008; Bishop, 1987; Garcia, Standlee, Bechkoff, & Cui, 2009). This application is not new, and as Androutsopoulos (2008) mentions, has been written about, and called by a range of neologisms, such as virtual ethnography, network ethnography, netnography, cyberethnography, and webnography. However this movement from face-to-face to what might be called, in this research, Facebook-to-Facebook, is not without challenges.

At it’s simplest level online ethnography can be viewed as part of a number of online research methods that can be employed to collect data via the Internet, such as online focus groups, online interviews, online questionnaires, etc. However online ethnography, based on

a critical paradigm, is far more than a data collection method, it is a method of engagement and change.

4.13 Types of Online Ethnography

As Figure 19 indicates, ethnography can be mapped on two continuums; offline-online and observation-participation. While it may be possible to map even more types of ethnography into this representation, for simplicity three layers are described *viz.* offline, blended and online.

	Observation	Participation
Online	Online Ethnography (Social Network Analysis)	Online Ethnography
Blended	Blended Ethnography	Blended Ethnography
Offline	Traditional Ethnography (Participant Observation)	Traditional Ethnography

Figure 19: Online ethnography mapping

Within the traditional (offline) ethnography layer there are two types of approaches, the first is based on observation and the second is based on participation. While the latter participative approach is now espoused (Feldman, 2011), a lot of ethnographic research has taken place that has been purely about observation (Atkinson & Hammersley, 1994), and it might be argued that it is not ethnography but what is termed “Participant Observation” as opposed to being a “Participant Observer”.

The second layer, blended ethnography, adopts a blend of offline and online ethnography. Blended ethnographic approaches can also be situated anywhere along the observation-

participation continuum, depending on the techniques used. An example of blended ethnography is Miller and Slater's (2000) work in Trinidad which involved both face-to-face and online encounters with the people of Trinidad. Their approach would be considered a participatory blended online ethnography as illustrated by the following comment; "It should be clear by now that for us an ethnographic approach to the Internet is one that sees it as embedded in a specific place which it also transforms" (Miller & Slater, 2000, p. 15).

The third layer is online ethnography which is based on "everyday life *on* the Internet, theorising the Internet as a site where culture and community are formed" (Androutsopoulos, 2008, p. 3). Once more, online ethnography can be categorised as either observation or participation. The first type of online ethnography is mainly around participant observation, such as observing chat rooms and forums. The second online ethnography seeks to not only observe, but also to participate in the online environments. As with offline ethnography, it may be argued that the underlying tenets of ethnography require participation and that observation-based online ethnography is really Social Network Analysis or Web-usage Mining and not ethnography at all. Observation based ethnography provides an opportunity for the researcher to "lurk" and study the subjects in their "undisturbed natural state" (Hine, 2008, p. 262). However as Hine (2008) continues to argue, this type of approach "should not be taken as ethnography in itself, since to lurk implies a lack of engagement and ability to develop the in-depth understanding from the inside that ethnography requires" (p. 262).

The method employed for this research is that of participatory online ethnography, as this is key to the critical paradigm, and is referred to as Critical Online Ethnography (COE). "In virtual ethnography the travel to a field site is itself virtual, consisting of experiential rather than physical displacement" (Hine, 2008, p. 259). While early work in online ethnography tended to focus on understanding online social life, as Hine (2008) argues in response to the "deficit models", that work tended to argue that online interactions were not as rich as offline ones. However the move has been away from this comparison mindset, as also seen in the early work around Facebook (DeSchryver, et al., 2009; Schroeder & Greenbowe, 2009), to one that explores the affordances of the technology space in its own right. "Ethnographers sought instead to find 'naturally occurring' situations and focus on whatever went on there are representing locally specific interpretations of the technology" (Hine, 2008, p. 260). As

Hine (2008) continues, the “emergence of social networking sites such as Facebook...also (provide an) occasion for adaptations of ethnographic enquiry” (p. 260).

4.14 Issues of Critical Online Ethnography

While COE seems appropriate to this research, both because of its alignment with the paradigmatic underpinnings and its resonance with the environment itself, there are nonetheless a number of issues with this approach. The following section explores some of the issues with COE⁴.

4.14.1 Finding the balance between observation and participation

“All ethnographers face dilemmas in deciding how to be an effective participant observer...there is a spectrum between full participant and full observer, and each ethnographer has to find an appropriate way to be present for their own field of study” (Hine, 2008, p. 260). The role of the ethnographer can also change; it may go from one where the researcher starts out as a participant and then becomes more of an observer, or alternatively may begin as an observer with the intention of becoming a participant (Hine, 2008, p. 260). In the case of this research, the space established in Facebook was new for the entire group, and as such we all (students, lecturers, tutor) entered as participants from the outset. However this did not necessarily mean that the perceived roles or power affordances were the same, as will be discussed in the analysis (Chapter 5).

“Some form of active participation in a group is therefore often useful for an ethnographer who wants to try out emerging understandings, and gain a sense of the experience of taking part in group interactions” (Hine, 2008, p. 262). One of the challenges is settling with the role of what Schaap (2002) calls the “divided self” where there is the role of the participant and the role of the researcher. In Schaap’s (2002) case this was more dichotomous as in the one he was in an embedded game-playing role as Eveline, a female, and the other he was the researcher anthropologist.

⁴ The Reflexion chapter explores these issues in more detail.

My participation is important as it allows me to see what it is like to post in the environment, how it feels to get Likes and comments or alternatively to not get Likes and comments on my posts. Are there times when responses are more forthcoming than other times? Does knowing who I am impact whether people respond to me? These are all issues, amongst others, that the participants face and experience and may not be realised by an observer. Another issue raised by Hine (2008) is that while the environment may have a primary form/place of communication, such as the main Facebook Page wall, a participant will realise that other forms of communication are often used to supplement this such as private groups, chat facility, email, etc.

My method involves me “being” in Facebook with the students. This involves everything from reading, posting, commenting, “lurking” and scrolling through previous posts (Gatson & Zweerink, 2004) in order to experience Facebook “with” the students.

4.14.2 Positionality and Trust

Being a participant in Facebook along with the students does not necessarily alter my positionality or my perceived positionality by the students. As Gatson and Zweerink (2004) ask, “How much of a separation between participant and observer must/should/is it possible for there to be?” (p. 185). While the intention is to be a participant, and to provide a flattened horizontal power structure (see below) this intention does not necessarily translate either in practice or perception. As Geertz (2012) suggests “we cannot represent others in any other terms but our own... (where) culture, from this perspective, is less a discovery than a construction within which the method and the methodology are inseparable” (p. 12). So even though there is the intention to participate, the intention to share “power”, there is still the inherent perspective and positionality with which I enter the space. However, while this may be something that is a negative from a positivist perspective, this is not necessarily the case from a critical perspective. This subjectivity, and positionality is germane to critical studies, and while it is not deemed possible or desirable to isolate this perspective, it is important to be aware of it and reflect on it during the study. As such these issues will receive attention both during the analysis and subsequent reflexion (see Chapter 8).

Related to positionality is the issue of trust. Building trust is necessary in any relationship, but particularly in the need to co-develop the space with the students (Barab, et al., 2004). This nonetheless creates tensions between my role as teacher and theirs as students. While no assessments are made in the space during the course, the intrinsic “power” of the lecturer may still filter into my comments and/or their perceptions. Managing these tensions is key to the success of the experience in the space.

4.14.3 Authenticity

Another issue that arises in COE is authenticity. While being a participant has key benefits to the ethnographer it also brings with it the possibility of altering the authenticity of the interactions, especially in a space where there is a perceived vertical power relationship between the participants and the researcher. Initial attempts to conduct online ethnographic studies were plagued with issues of authenticity, not the authenticity of the space to the participants but in an apologetic manner, questioning the authenticity of the participants to the real world (Hine, 2008, p. 263). “Whether enough trust could be placed in what people said online...some researchers responded by acknowledging a need to corroborate what was said to them online with face-to-face research with the same informants” (Hine, 2008, p. 263).

As mentioned in the Literature Review (Chapter 2) this was also reflected in some of the earlier research in Facebook where there was a focus mainly on comparative research or the research in Facebook appeared to be almost apologetic. This is also not dissimilar to the early days of development of e-learning environments and particularly Learning Management Systems. These LMSs attempted to mirror the offline counterpart, the lecture theatre, where authenticity was considered the comparison to the standard of the offline. Only if it is verified offline and matched to the offline, is it considered authentic. Yet the antithesis of this is authenticity of the space to the users, not the users to offline. Part of this issue arose with the need to verify identity. How could what is being said be considered authentic if we did not know who said it? Markham (2004) reports being asked to interview his participants offline to get a more holistic picture.

“When we rely on our embodied sensibilities of knowing, we are not necessarily getting a better or more ‘accurate’ picture of the subjects of our studies; we may be simply reflecting our own comfort zones of research” (Markham, 2004, p. 342). It is therefore important in this COE, to be aware that the students and the environment being explored are authentic to their experience and may not need to necessarily reflect some (perceived) offline authenticity. This means that while comparisons to offline learning are always likely to occur, it is important to look beyond this and consider what the students’ experiences signal about their learning in the online environment. “Researching online is an opportunity to examine and maybe rethink what it is that we mean by ‘real’ and ‘authentic’ in relation to ethnography...we need to reconsider the automatic link that is sometimes made between embodiment and authenticity” (Hine, 2008, p. 264).

4.14.4 Anonymity

Another issue, raised above, is the issue of identity and especially anonymity in online environments. As mentioned in the literature review (Chapter 2), most studies have focused on the use of Facebook Groups whereas this study will make use of a Facebook Page. One of the (unintended) consequences of using a Page is that students can post anonymously (as the generic Page name). “Anonymity in text-based environments gives one more choices and control in the presentation of self, whether or not the presentation is perceived as intended” (Markham, 2004, p. 341).

Anonymity can lead to students saying things that they may not necessarily have said, either to fellow students and/or the lecturer. It can also, within the Facebook Page, allow students to mask actions that they undertake, such as changing the profile picture of the Page or deleting a student’s comment etc. Another issue is that anonymity can lead to misunderstandings when students are addressing each other. For example they can address another student, assuming they are talking to the lecturer, or alternatively they can “pose” as the lecturer. Also there is the potential that I will have issues, if I post anonymously, of making my “voice” heard.

So while anonymity has various advantages it does impact on identity, where the issues of identity are far more malleable in the online environment than in the real world. Online environments such as Facebook produce identity primarily through the text that we create and the images we choose to represent ourselves (Rybas & Gajjala, 2007). Being aware of this malleable, transitive identity is part of COE.

4.14.5 Ethics

As with all research, the issue of ethics is a key concern. This is maybe even more so an issue in ethnographic studies where the researcher is not “detached” but part of the community that is being researched. Issues of trust, anonymity, etc. all arise in these situations. Ethical issues can and should pervade all aspects of the research process from the participants of the research, to the collection of the data, to the analysis and reporting of the findings (Savenye & Robinson, 1996).

As Hine (2008) argues, online research, even though mediated by technological platforms, is deemed to be human subjects research, and therefore requires informed consent from participants. This informed consent was obtained from all students involved in the research. However the main issue is to do with privacy of those who are involved. “Ethnographers have often sought to protect the privacy not just of the individual informants they draw upon, but also the identity of the site they chose” (Hine, 2008, p. 265). However as online texts tend to be permanent and are often searchable, even the obscuring of names and identities can be rendered pointless by simply searching for the quoted text transcripts.

Several studies in Facebook (Bair & Bair, 2011; Debatin, Lovejoy, Horn, & Hughes, 2009; Hurt, et al., 2012) point to the issues of security and privacy being raised as concerns by the users. The blurring of ethical issues has become a hallmark of online research where the very public nature of the Internet brings with it both an expected permanence and visibility to users. Some researchers (Hine, 2008; Hurt, et al., 2012; Rodriguez, 2011) suggest that the public nature of the Internet is germane to the environment and that using these online spaces therefore is acceptable as long as they are not used for open assessment.

One of the key issues, as Gatson and Zweerink (2004) explain, is the issue of “the desire for privacy and anonymity warring with the desire for recognition and popularity” (p. 181). Even in real-world situations, ethnography is faced with issues of privacy whenever the research involves any form of photographs or video. However in online environments disguising the identity of people is even harder to do, especially when reference is made to either the environment or the university where the study took place. This research is similarly placed to that described by Gatson and Zweerink (2004) where from the outset the public nature of the environment (Facebook Page) was known to all the members involved in the Page.

However, while all posts were public, which is the nature of using a Facebook Page, all the students were given administrator privileges on the Page. This meant that all students (and staff) by default posted as the name of the page, Fabspace. This generic posting handle meant that all members of the Facebook Page were by default anonymous. Posters had to either specifically choose to reveal their identity, or they could choose to tag their posts with their name, or alternatively leave their posts anonymous. This choice meant that although the space was a public space, the participants were all anonymous unless they chose to reveal themselves.

These new online spaces bring with them a series of new challenges with regards to ethics. In addition to what has been discussed in this section, it is suggested by Sveningsson (2004) that the researcher also include a reflexive section on his/her involvement in the research. This section is included (see Chapter 8) as a key device of this critical approach.

In addition to informed consent letters being obtained from all the students, the research process was submitted for ethical clearance to the University of KwaZulu-Natal ethics committee. A copy of the ethical clearance approval letter is contained in Appendix A.

4.14.6 Other

There are a variety of other issues that arise in online ethnography. For example online spaces and communication remove the real world non-verbal cues that are often so important in conversation. While the Internet community has developed surrogate cues, such as

emoticons, these still do not communicate the richness of real world non-verbal cues, and additionally may not be used by all participants, or even misinterpreted.

Another issue caused by slow typing is a digital silence in chat rooms. While silence in a real world situation can be more easily interpreted, this is not the case in an online chatroom. I found these silences particularly challenging in the virtual focus groups (discussed below). While in a real world situation the silence can be used effectively to elicit more comment, in the online environment the digital silence tends to come across as a slowing down of the tempo of the conversation and made me want to nudge the conversation along.

Finally there is the issue of dealing with the interleaving of multiple simultaneous conversations. “Constant interruption of the participant’s talk can have a significant impact on the flow and content of ideas. Yet interruption is a primary mode of interaction in text-based spaces and therefore is a necessary skill to be practiced by researcher” (Markham, 2004, p. 336). In the real world this would be considered rude, but the nature of synchronous chat environments is that the responses to questions are a factor often of the typing speed of the respondent. This means that there is often an interleaving of conversation threads, and even small talk, threaded throughout the main content conversation. In face-to-face interviews this is hardly noticed, but in online conversations this small talk clutters the flow of the actual conversation. However it still plays the same role of acclimating everyone to the space and process, and hence requires careful treatment.

There are potentially many other issues that arise when undertaking a COE study such as this. Grappling with many of these issues is still something that is new for us as researchers as we attempt to navigate our way in an environment that is both redefining and challenging many of our predetermined notions. As Markham (2004) says “the dilemmas associated with doing online Internet research often arise in the midst of a study, unanticipated and unaccounted for by even the most careful research design” (p. 330).

The next section will now discuss the research design of the study.

4.15 Research Design

The previous sections have laid the theoretical foundation upon which the research is developed. The first section looked at the underlying critical theory paradigm. This was followed by the argument for the adoption of a critical ethnography. The next section then argued for a critical online ethnography as the research is taking place in an online environment. This section will now discuss the research design by describing the participants, the ethnographic environment and the data sources in order to answer the three critical questions:

CQ1 - What are the affordances of a Facebook learning environment?

CQ2 - How do students learn in a Facebook learning environment?

CQ3 - Why do students learn in a Facebook learning environment in the way they do?

4.15.1 Ethnographic Case Study approach

This research focuses on the learning experiences of a 4th year (Honours) Information Technology class. Yin (2009) says that a case study is a research approach that focuses on getting an in-depth understanding of a specific entity or event. Baxter & Jack (2008) say that a case study approach should be used when the focus is on answering “how” and “why” questions, which is what this research is focused on. However they also add that it is suitable when “you cannot manipulate the behaviour of those involved in the study” (p. 545). In this case, as discussed above, being a participant researcher means that this is not true.

Rybas & Gajjala (2007) in their study of Facebook, say that “cyberethnographic engagement plays into the critical research agenda of examining the contextual manifestation of oppression.” They see cyberethnography as being based on an epistemology of doing, which resonates with the critical framing of this research, and my embedded role, but also which impacts the “non-involvement” requirement of case studies. So while this study involves a single case it is not a classic, positivist case study, but rather what can be termed an ethnographic case study approach.

Gallant (2008) argues for the use of this approach in her study of the socio-cultural discourse in an Arab state. She argues that ethnography enabled her to “interact intimately” with her

participants thus seeing the “involvement of the researcher in the setting being studied (as) a strength” (p. 3). She intended to look at multiple cases but needed to be both transformative and embedded, and so she argues for an ethnographic case study approach.

This research can also be seen as an ethnographic case study, where the case is the single instantiation of an online course, and where the researcher “interacts intimately” with the students.

There are two key issues that arise out of this more critically aligned approach to case study. The first is the issue of generalisability, and the second is the issue of validity. While this research may be considered a case study, its critical framing and ethnographic approach mean that this research is not intended to be generalisable. Generalisable research tends to be situated within a more positivist framing with its “blessed trinity (of) theory driven, hypothesis testing, (and) generalisation producing” (Peshkin, 1993, p. 23). Rather than being generalisable this research intends to be generative, where theory emerges from the data analysis (Peshkin, 1993, Henwood, & Pidgeon, 1992).

The second issue is the issue of validity. Wainwright (1997) argues that qualitative research is gaining respectability because of its willingness to submit to positivist notions of reliability and validity. This, he argues, is robbing ethnographic methods of their critical potential to challenge discursive formations and rather rendering it a mechanism of surveillance. “The key to managing this unstable dialectical relationship between ethnographic observation and social critique is to re-conceptualise validity in terms of reflexive practice...a personal strategy by which the researcher can manage the analytical oscillation between observation and theory in a way which is valid to him or herself. Of course, this will be anathema to the positivist” Wainwright (1997, p.3). Therefore, while there are numerous approaches to validity, within an ethnographic framing, validity can be demonstrated through reflexion on the ethnographer’s role as a researcher-participant (Bailey, White, & Pain, 1999). To this end I have included a chapter (Chapter 8) that explores my oscillation between roles.

4.15.2 Participants

As mentioned, this research is based on the learning experiences of a 4th year (Honours) Information Technology class. The module that was used for the research is called Computer Mediated Communication (ISTN430) and the purpose of the module is to “provide students with the theoretical and practical know how to use Web 2.0 technologies to evaluate and develop Web 2.0 business models as applied to business, education and entertainment” (ISTN430 Module Guide). A copy of the module guide can be seen in Appendix B. As such it is focused on their ability to make sense specifically of Web 2.0 technologies, such as Facebook, Twitter, Pinterest, Google+, etc. and how these technologies are changing how we learn, play and do business. The ISTN430 course was divided into three topics that officially ran from 7 February 2012 to 18 May 2012, although Facebook posts continued on after this date. Facebook was mainly used to support Part 1 of the course, the remaining parts (2 & 3) predominantly taking place in Second Life (a 3D Virtual World).

The ISTN430 course was purposefully chosen as the course involves 4th year students who are familiar with technology, and as such issues of technophobia were unlikely to arise, and students would most likely be familiar with, and comfortable in Facebook. As this research is focused on learning in Facebook, and not on technology adoption, it was important to use a group who were already comfortable in the technological space.

Besides two face-to-face lectures at the start of the course, all of the learning aspects of the course took place online, within Facebook and later on in Second Life. Part 1 of the course, which this research focused on, consisted of two assessments (see Appendix C). The first assessment required the students to produce a Web 2.0 report. This is a map that shows their conceptual understanding of Web 2.0 technologies and how they are related. This also included a discussion that they had with other students explaining and defending their map. The second assessment was a panel discussion where students, posing as various Web 2.0 experts had to demonstrate their understanding of various areas. Students were assigned areas of expertise, such as Facebook or LinkedIn and had to answer questions in a Panel regarding their business. Prior to this the students were required to demonstrate their knowledge of their

specialist area in an online mock Panel discussion. This was used to both help them get a feel for the real panel assessment and to allow them to demonstrate their understanding. While the second assessment took place in the real world, the learning and preparation for the assessment took place in Facebook. In addition to the students' posts, and discussions around these posts, the students also engaged in various chat room discussions where they developed their knowledge and arguments around Web 2.0 technology.

The ISTN430 class consisted of 38 students, 2 lecturers (myself and another) and 1 tutor. However in addition to this, due to the open nature of the Page, students from other modules, friends of students, and lecturers from other modules also participated on the Facebook Page. The 38 ISTN430 students were also split geographically over two campuses (Westville and Pietermaritzburg) that are about 80km apart. This meant that these students were most likely only going to meet some of their fellow students in Facebook and not face-to-face.

4.15.3 Ethnographic Environment

As the main focus of this research is to explore student learning in Facebook, the central source for the data collection was within Facebook. As such a Facebook Page was set up within Facebook. As discussed in the Literature Review (Chapter 2) a Page is a public space where any person can join and participate. A Page also has a number of features that are not available in other Facebook spaces, such as Groups, and Events, that include the ability to add applications, have multiple anonymous administrators, push content automatically to all participants' newsfeeds, etc. The Page was given the name "FaB Space" (see Figure 20). The Page will be referred to as "Fabspace" as this was what the students used when talking about the Page.

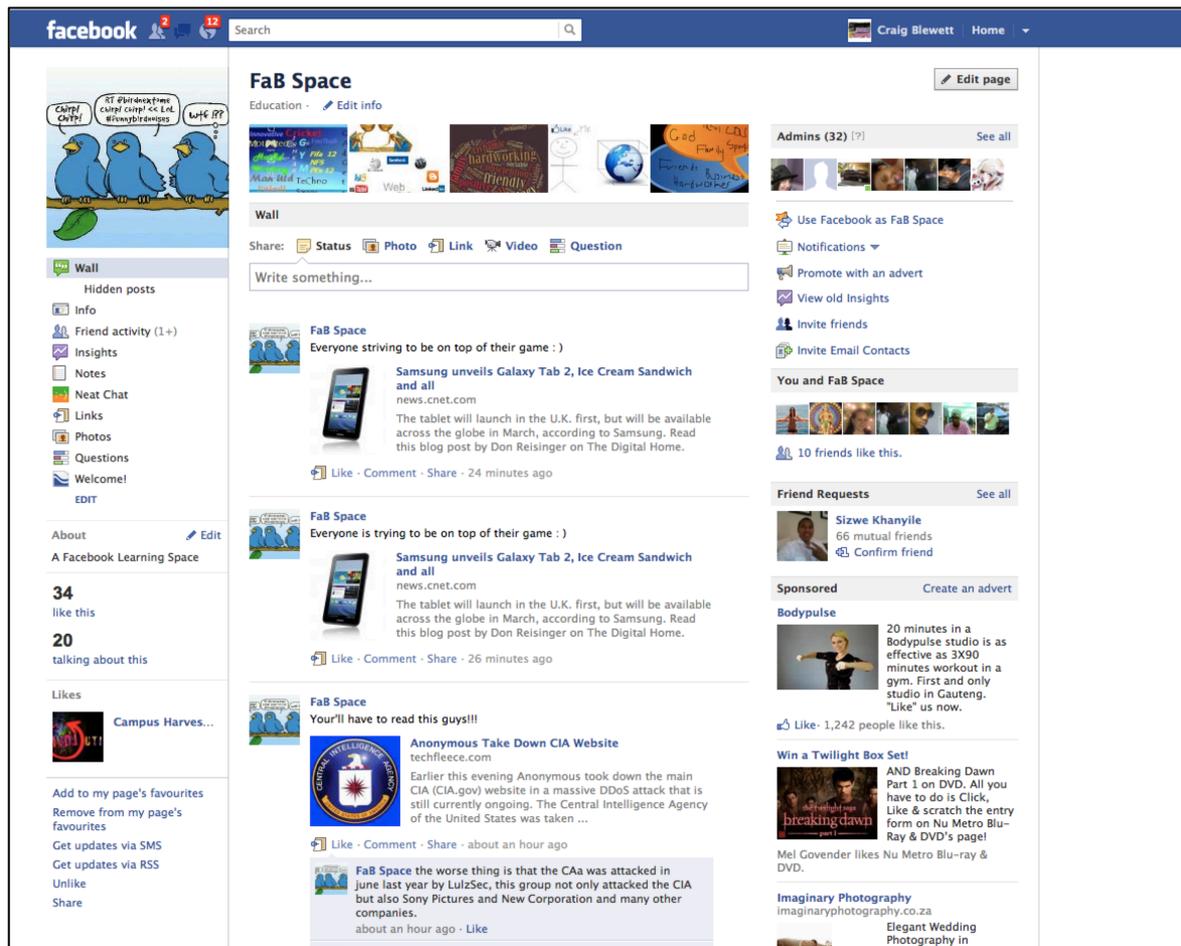


Figure 20: Fabspace Facebook Page

In addition to the main Facebook Page a number of other spaces (Pages, Groups, Events, Forums, etc.) were set up both by myself, and the students. The next section details the various data sources used in this research.

4.15.4 Data Sources

This research makes use of three main data sources;

1. Facebook Page (Fabspace)
2. Virtual Focus Groups (VFG)
3. Reflective journals (RJ)

While the main source of data is the activity in Facebook (Fabspace), all three sources provide entry into the students' learning experience by exploring their “discussing”, “doing”, and “deliberating”.

- Discussing - Transcripts from the students' discussion within;
 - Initial Virtual Focus Groups (at the start of the course)
 - Final Virtual Focus Groups (at the end of the course)
- Doing – Transcripts from the students' participation within;
 - Fabspace (the official Facebook space setup for the course)
 - Self-created spaces (within Facebook) setup by students in order to facilitate their learning (includes events, groups, and pages)
- Deliberating - Transcripts from the students' personal reflections within Reflective Journals

While there were three main data sources, each of these contained multiple additional sources (Figure 21). For example, while Fabspace contained most of the activity, students also interacted in other related spaces (Chat Room, Groups, Events, other Pages, other external to Facebook spaces, Forum). The Virtual Focus Groups took place in the add-on Chat Room, and the Reflective Journals were kept in a variety of online blogs.

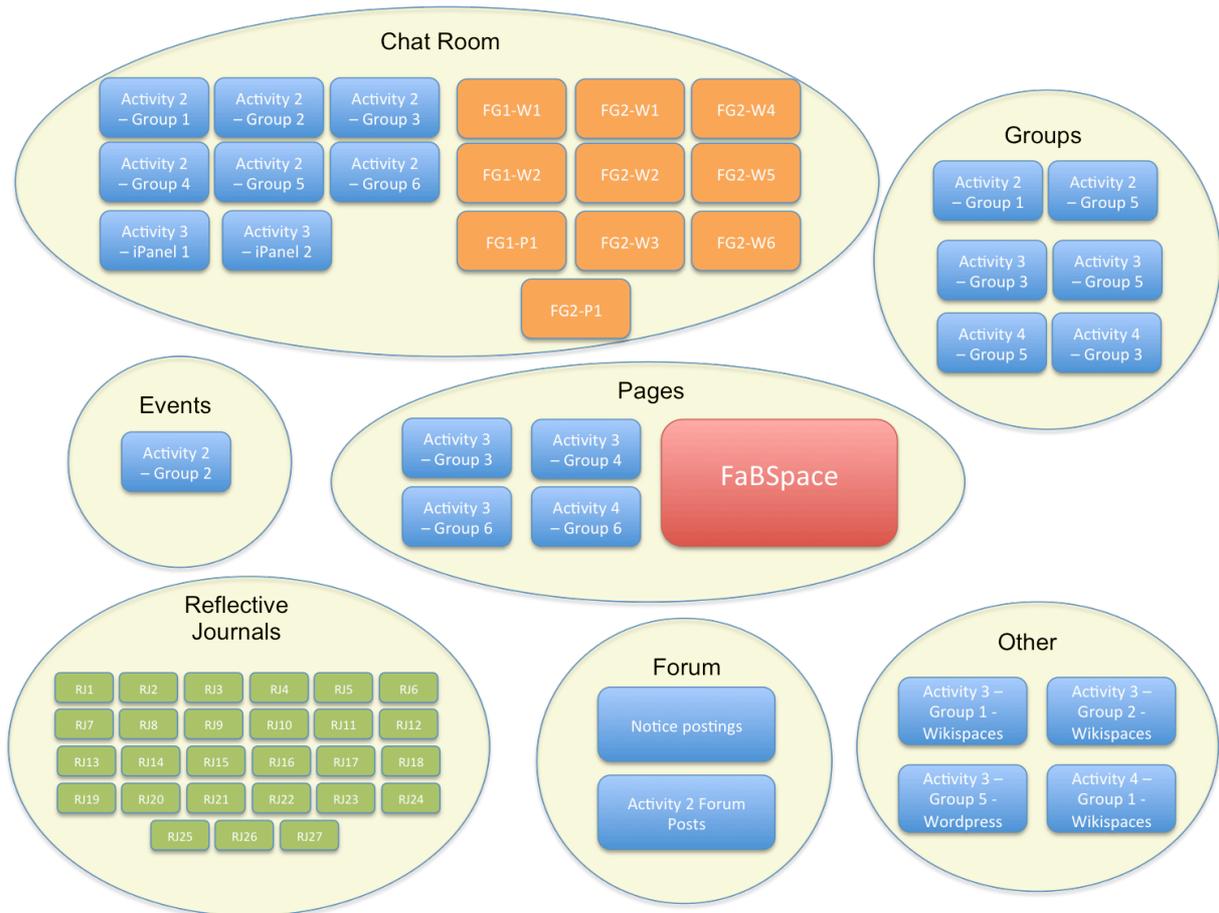


Figure 21: Multiple Data Sources

The three main sources of data will be discussed in more detail below.

4.15.5 Facebook Page

The main data source was the Facebook Page (Fabspace). A Facebook Page is made up of Posts and Comments, where a Post is the term for the content that initiates a conversation and a Comment is the reply to the Post, as depicted in Figure 22 below.

FaB Space
Your'll have to read this guys!!!

Anonymous Take Down CIA Website
techfleece.com

Earlier this evening Anonymous took down the main CIA (CIA.gov) website in a massive DDoS attack that is still currently ongoing. The Central Intelligence Agency of the United States was taken ...

Like · Comment · Share · about an hour ago

FaB Space the worse thing is that the CAa was attacked in june last year by LulzSec, this group not only attacked the CIA but also Sony Pictures and New Corporation and many other companies.
59 minutes ago · Like

Ebrahim Hassan Adam LOL – sorry but Anonymous is brilliant... :)
7 minutes ago · Like

Ebrahim Hassan Adam http://www.youtube.com/watch?feature=player_embedded&v=wmPNeZrowmQ
6 minutes ago · Like

FaB Space We are living in interesting times – anyone can take on even the big people – it makes Web 2.0 all so interesting – Craig
3 minutes ago · Like

Write a comment...

Figure 22: Post and Comment

Fabspac contained 663 Posts and 1820 Comments, a total of 2483 content units. This also includes 52 comments from people external to the course. Figure 23 shows the post/comment ratio across the three groups of users; students, staff, and visitors.

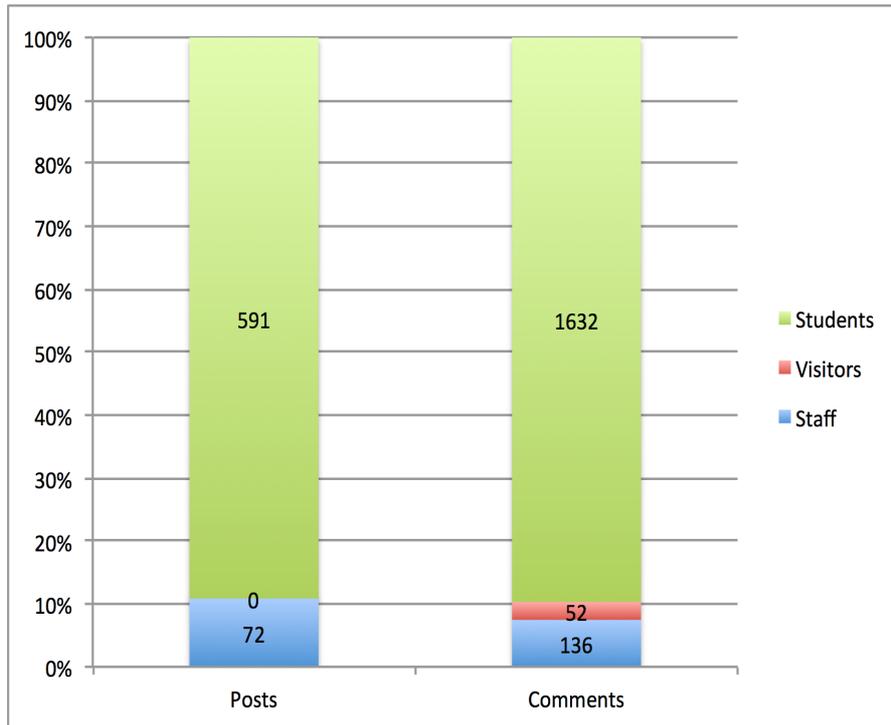


Figure 23: Post/Comment Ratio in Fabspace

The activity on the page remains as a continuing transcript so the page can be mined for data at any stage. However students can delete posts, change profile images, add/delete applications, etc. and as such it was necessary to also capture the page as it appeared each day. For this purpose HyperAlerts (www.hyperalerts.com) was used, which emailed me a daily log of all activity on the page.

As mentioned previously (Chapter 2) students were given administrator rights to the Facebook Page. This meant that the students could also alter various design elements of the Page. For example students could alter the Page profile picture, the Page cover photo, and additionally add or remove applications to the page, such as the Chat Room, Forum, etc.

The Facebook Page is the main source of data as this is where the students interacted and responded to the affordances of Facebook. However, virtual focus groups and reflective journals provided further insights into the students' activities on the Facebook Page. The next section considers the virtual focus group data source.

4.15.6 Virtual Focus Groups

The second source of data are the virtual focus group (VFG) discussions (Adler & Zarchin, 2002). Focus groups have been used for many years and typically consist of 7-12 participants, led by a moderator, discussing a particular topic (Easton, Easton, & Belch, 2003). Unlike interviews, focus groups allow for more freedom of discussion, although the moderator typically guides the discussion through the use of seed questions. “Conceptually, the interaction allows researchers not only to discover what people think about a particular topic, but also why they think the way they do” (Easton, et al., 2003, p. 719). This is particularly useful in this study as it is important to try and understand not only what students do when learning in a Facebook environment but also why they learn in this way, as was demonstrated in Pimmer, Linxen, and Gröhbiel’s (2012) focus group based study of Facebook.

While similar in concept to focus groups, VFGs take place in an online environment. According to Easton, et al. (2003) there are a number of advantages of VFGs over traditional focus groups, *viz.* support for larger group size and less inhibition leading to more useful and unique ideas. In addition to these advantages, one of the main reasons for making use of VFGs was for consistency with the online engagement environment. As the research and learning engagement takes place online, conducting the focus group online provided consistency of medium, and therefore enabled the students to continue to be anonymous and make use of other online affordances.

However there are also disadvantages of using VFGs. Easton, et al. (2003) report two main disadvantages being getting participants to stay involved and keeping the conversation on track. In addition to these I found it difficult to also know when participants were quiet because they were typing, or simply not participating, or not understanding my question. Also with the interleaved nature of the responses, it was difficult to always keep track of which reply related to which question. This led to the use of smaller VFGs in the second round, as discussed below.

The VFGs took place within a chat room that was installed as an application inside the main Fabspace Facebook Page. Students could access the chat room by clicking a link on the Fabspace Page. The chat room provided a synchronous virtual space where students could

engage in conversation with me as the facilitator. While this particular chat room (Neat Chat) was unfamiliar to most of the students, the use of online chat is a part of social networks spaces such as Facebook. The figure below (Figure 24) shows a screenshot of the Neat Chat tool used for the VFGs.

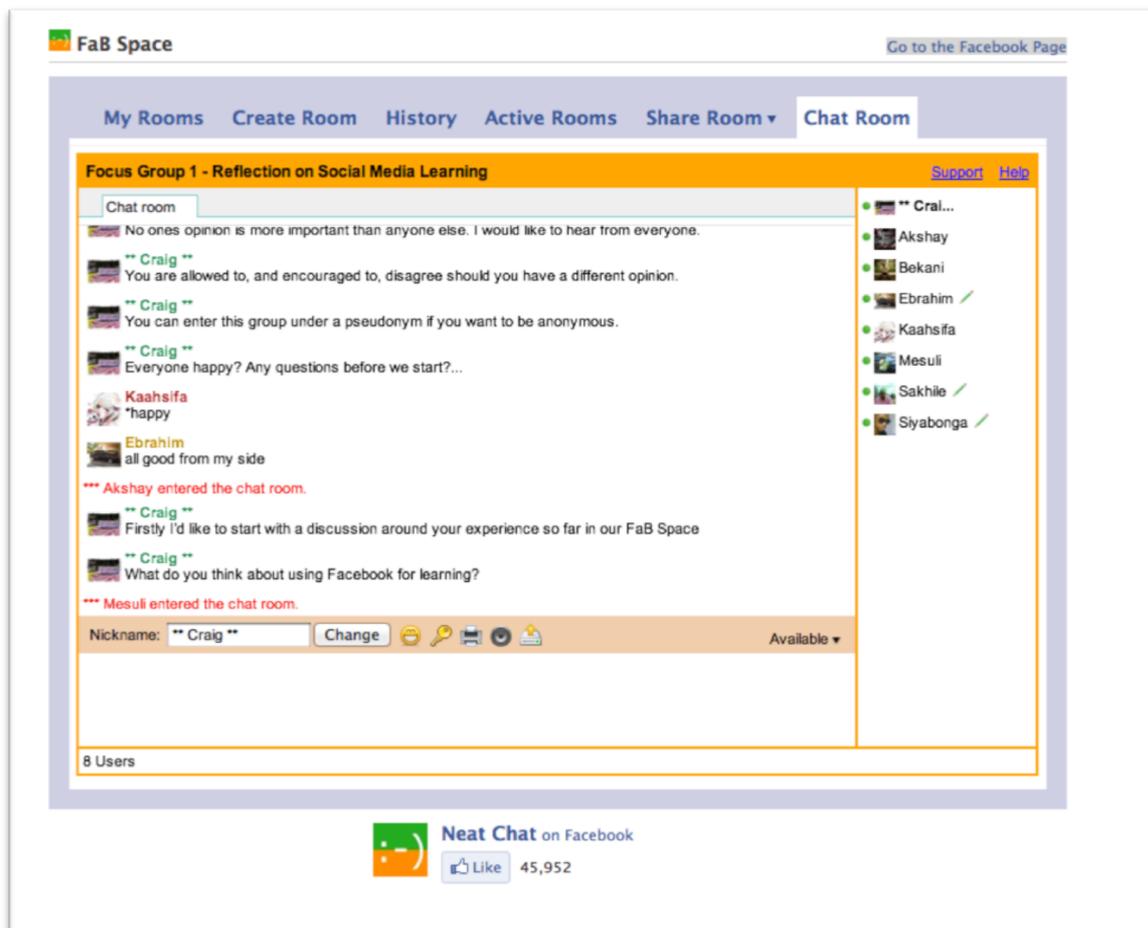


Figure 24: Neat Chat chatroom application

As mentioned previously, one of the advantages of using a Facebook Page over other Facebook spaces is that applications can be added to the Page to extend its functionality. So while Facebook provides a chat facility (Facebook Chat) this facility is not as versatile as Neat Chat. Neat Chat provided the ability to create multiple rooms and also to easily keep a transcript of the conversation.

Two sets of VFGs were conducted, one at the start of the course and the second at the end of the course. The first round of VFGs was held in the second week of the course on the 16 Feb 2012 (FG1-W1, FG1-W2) and 17 Feb 2012 (FG1-P1). The course commenced in the previous week (5 Feb - 10 Feb 2012) with a face-to-face lecture that introduced the students to the course material and the Facebook space that would be used for the course. The purpose of dividing the class into three groups was to ensure that there were not too many people in each VFG as this can make it difficult to follow the discussion threads. FG1-W1 consisted of 11 students, FG1-W2 consisted of 12 students, and FG1-P1 consisted of 8 students.

The purpose of the first round of focus groups was to determine student perceptions around the use of Facebook as a learning environment. While the questions were allowed to develop during the course of the virtual focus group (Turney & Pocknee, 2008) they were broadly divided into two parts. The first set of seed questions was around the students' expectations of using a space like Facebook for learning (affordances) and the second set of questions was around controlling of the Facebook space (power).

The seed questions for Part 1 were as follows;

- 1: WHAT DO YOU THINK ABOUT USING FACEBOOK FOR LEARNING?
- 2: WHAT DO YOU THINK ABOUT THE TERMS OF ENGAGEMENT WE CAME UP WITH AS A GROUP?

The seed questions for Part 2 were as follows;

- 3: HOW DO YOU THINK DECISIONS SHOULD BE MADE IN A SPACE LIKE THIS?
- 4: WHAT DO YOU THINK ABOUT EVERYONE BEING ADMINISTRATORS?
- 5: WHAT DO YOU THINK ABOUT BEING ANONYMOUS IN THIS SPACE?

The questions, and all my text, were in UPPERCASE, which is traditionally associated with shouting in an online environment. However it was found that in order to get the questions to stand out in the fast moving stream of replies, it was necessary to have them in uppercase. This was explained to the students at the starts of the VFGs so that they would realise that this was not intended as shouting but merely for ease of readability.

The second set of VFGs took place at the end of the course. After the first round of VFGs, where the average size of the groups was about 12 students, it was decided to decrease the size of the groups to make it easier to keep up with the interleaving conversation threads. This is the opposite to Easton, et al's (2003) suggestion that VFGs have the advantage of supporting larger numbers than real world focus groups. While it is possible to include many more participants in a VFG than in real world focus groups, the interleaving conversation threads become too difficult to process. As such the second round of VFGs made use of 7 VFGs where most only contained three or four students. Six VFGs took place with the Westville students (FG2-W1/6) and one with the Pietermaritzburg students (FG2-P1). Some of the Pietermaritzburg students were involved with the Westville VFGs, however due to timetable issues it was necessary to have a time slot that would work specifically for the Pietermaritzburg students.

The main purpose of the second round of VFGs was to explore student perceptions of their Facebook learning experience after the course, and involve them in initial analysis of the experience. Once again, while there were seed questions to initiate discussion, the discussion was allowed to flow and develop during the VFG. The seed questions were divided into three parts. The first explored the affordances of learning within Facebook, the second considered issues of democracy and power, and the third encouraged any other discussion.

The seed questions for Part 1 were as follows;

- FACEBOOK HAS A SPECIFIC STYLE OF GATHERING AND PRESENTING INFORMATION. WHAT ABOUT THE WAY FACEBOOK IS DESIGNED, CHANGED THE WAY YOU WOULD HAVE NORMALLY LEARNED - EITHER FOR THE BETTER OR FOR THE WORSE.
- DID YOU INSTALL ANY APPLICATIONS OR MAKE ANY CHANGES TO THE FACEBOOK SPACE TO HELP YOU WITH YOUR LEARNING? WHY?
- OUT OF THE VARIOUS ASPECTS OF FACEBOOK - POSTS, LINKS, COMMENTS, CHATROOM, FORUM, FACEBOOK MESSAGING, GROUPS, OTHERS? - WHAT DID YOU FIND MOST USEFUL FOR LEARNING? WHY?

- HOW DID YOU GO ABOUT READING AND INTERACTING WITH THE CMC FACEBOOK PAGE? DID YOU SKIM IT? READ IT SEQUENTIALLY? LOOK AT NOTIFICATIONS? OTHER?
- WAS THERE A SOURCE (WEBSITE OR PERSON/S) THAT YOU CONSIDERED A KEY SOURCE FOR INFORMATION?
- WHAT WOULD IMPACT WHETHER YOU RESPONDED TO A POST WITH A COMMENT OR A LIKE?

The seed questions for Part 2 were as follows;

- IN A DEMOCRATISED SPACE LIKE THIS THERE ARE MANY AND NO LEADERS. WHO DO YOU THINK WERE LEADERS? WERE YOU EVER A LEADER?
- DID YOU EVER POST/DO SOMETHING TO THE PAGE THAT YOU EITHER REGRETTED, DELETED OR CHANGED? WHY?
- HOW WERE DECISIONS MADE?
- WHAT WERE YOUR VIEWS ON BEING ANONYMOUS? IF YOU WERE, DID YOU APPEND YOUR NAME - WHY?

The seed questions for Part 3 were as follows;

- FINALLY...ANYTHING ELSE YOU WANT TO SAY ABOUT YOUR LEARNING EXPERIENCE INSIDE FACEBOOK?

The transcripts of both the first and second round of VFGs were used as part of the analysis as described in more detail under Data Analysis.

4.15.7 Reflective Journals

The third source of data was the students' reflective journals (RJ). The use of RJs provided an opportunity for participants to record their thoughts and reactions during various parts of the learning process. This is important as these thoughts may be forgotten later if they are not recorded. "A written journal can be a place both for recording learning experiences and processing them in order to understand their implications" (Robertson, 2011, p. 1631).

Additionally the RJs provide a space for students to record thoughts and feelings that they might not willingly express in the public forums.

There are a number of key occasions where this reflective journaling was appropriate during the course, and while the keeping of a RJ was voluntary, students were prompted at various stages to record their thoughts. Robertson (2011) suggests the use of a blog as the technological equivalent of a traditional journal. Students were allowed to make use of any online space they preferred to keep their reflective journal, but most of them made use of blog spaces as these appeared to provide the easiest place for recording their reflections. In total 27 of the students kept reflective journals during the course. As these reflective journals were private, unlike the main Facebook Page, quotes from them have been anonymised.

The reflective journals provided a useful insight into the thinking and reasons behind some of the activities that were enacted in Fabspace, and as such were a useful data source to further explore the students' online learning experience. Having outlined the data sources the next section will consider the data analysis approach used in this research.

4.16 Data Analysis

Having described the research design, this final section presents the data analysis approach followed in this research. Morris, Leung, Ames, and Lickel (1999) describe two key perspectives that a researcher can take in analysis, the first is an etic perspective and the second is an emic perspective. An etic perspective attempts to describe behaviour from an external vantage point while an emic perspective attempts to describe behaviour as seen from the perspective of insiders. The guiding Critical Online Ethnography methodology described in this chapter seeks to immerse me inside the area of study and hence favours an outsider-as-insider (emic) approach.

As Samuel (2009) points out there are a range of analytical approaches that can be used, but one way of discriminating between approaches is by aligning the data analysis approach with the espoused methodology. In Figure 25 below Samuel (2009) presents a range of data analysis approaches mapped against an emic-etic continuum.

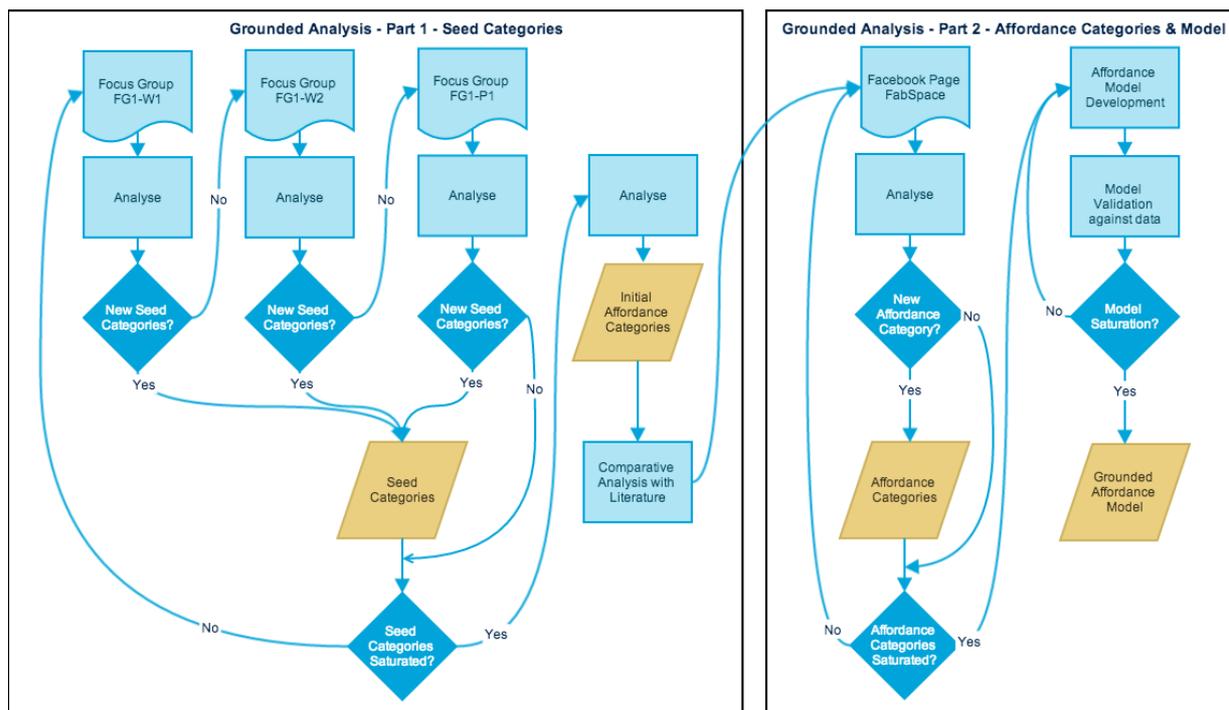


Figure 26: Grounded analysis approach

The Analysis was divided into two parts. The first part made use of the three initial focus group transcripts and the literature to develop seed affordance categories. The process was to analyse the first focus group (FG1-W1) and generate codes from this.⁵ As new codes were identified they were added to the code list until no new codes could be identified from FG1-W1 (code saturation). The second focus group (FG1-W2) was then analysed using the codes from the first group and additional codes were also sought. The discovery of new codes caused a return to the first focus group (FG1-W1) to determine if these codes also existed there. Once code saturation was reached again, the process was repeated with the third focus group (FG1-P1). Finally after generating a list of seed categories⁶ the list was analysed and grouped to create an initial list of affordance categories (Appendix D).

The second part of the seed category analysis was to then compare the list emerging from the data with those identified in the literature to see what categories were not identified by the analysis or were identified in the analysis and not the literature. This process resulted in a

⁵ All the coding was performed using Atlas.ti (www.atlasti.com)

⁶ FG1:W1 – 95 Codes, 489 Coded items, FG1:W2 – 62 Codes, 394 Coded items, FG1:P1 – 68 Codes, 166 Coded items

comparative list of affordances that served as seed categories for the analysis and coding of the FabSpace data set.

This first step of the analysis identified potential affordance categories based on both the student expectations arising from the focus group and the literature. The second step of the analysis involved using these seed categories and analysing the actual student usage of Facebook as reflected in the activity within FabSpace. This process resulted in coding 13368 elements and identifying 279 codes.

Thereafter a process of merging and cleansing code categories was undertaken which resulted in a final list of 65 codes. These codes were then consolidated further, after comparison with the codes arising from the Part 1 analysis and this resulted in a list of 11 affordances (Appendix E).

The identification of the affordances, arising from the students' use of Fabspace, provides the entry point into the analysis of the data and forms the foundation of Chapter 5 which seeks to understand the affordances of using a Facebook learning environment.

There are 3 "layers" of data sources that are used in this analysis of student learning. The first are the VFGs, the second is the Facebook Page, and the third are the Reflective Journals. These essentially relate to what the students "say", "did" and thought. This research is focused on how students learn, and so while the VFGs provided a useful starting point to identify seed categories (see above), the focus was on their actual use of Facebook, rather than their perceived use. However, where there are interesting differences between the students' perceived usage and actual usage these have been discussed.

The third data source, RJs provides an insight, away from the "public eye" of students' thinking about the experience. This provided a useful insight into "why" students may have engaged, or not engaged in certain ways. This data is used throughout the analysis, where appropriate, to help further unpack the observed student learning behaviour.

4.17 Conclusion

As Robert Burns famously said in his poem, “*The best laid schemes of mice and men. Often go awry.*” This is even more so when it comes to a research methodology. Assuming an *a priori* designed plan will be seamlessly implemented is either naive or only possible in some positivist realm. However in an ethnographic environment, especially where the environment is online, there are many factors that are not planned for or imagined. As Deleuze and Guattari (1987) put it, “Those things that occur to me, occur to me not from the root up but rather only from somewhere about their middle...” (p. 23). And so it often is that adjustments must be made, plans changed, and new perspectives taken during the process of research. This does not negate the need for plans and a research methodology but it does require the researcher to be ever astute and prepared to adjust where the need arises.

This chapter has described the research methodology assemblage, based on a critical theory paradigm, detailed in a critical ethnographic approach, and implemented as a critical online ethnographic method. Next the chapter described the research design in terms of the participants, implemented ethnographic environment (Facebook) and various data sources. Finally the chapter concluded with a discussion of the grounded data analysis approach.

The design and approach detailed in this chapter, while borrowing the principles of traditional ethnography finds itself facing many new opportunities and challenges within the online world. We are still learning about research in the online world and even more so when it comes to online ethnographic studies, where the researcher “lives” with the participants. However the opportunities for exploring digital natives’ experiences are many and varied, and the opportunities in using an online ethnography are potentially greatly rewarding (Prensky, 2001).

So while this chapter has outlined my espoused paradigms and approaches, it must be acknowledged that all these are beliefs, or human constructions, and not open to incontestable proof. Therefore everything I say in this research is also of human construction, and “the reader cannot be compelled to accept (my) analyses, or (my) arguments, on the basis of incontestable logic or indisputable evidence; (I) can only hope to be persuasive and to demonstrate the utility of (my) position” (Guba, 1990, p. 108).

The next chapter begins this demonstration, where, in attempting to answer the first critical question - “What are the affordances of using a Facebook learning environment?” I present my analyses and arguments.

5 Facebook Affordances

“The dominant Western worldview is not based on seeing synergies and connections but on making distinctions and seeing differences. This is why we pin butterflies in separate boxes from beetles - and teach separate subjects in schools.” (Ken Robinson)

5.1 Introduction

The first research question seeks to explore the concept of Facebook affordances. Exploring affordances is a useful theoretical lens as it does not examine benefits, advantages or features of objects or environments but rather what the object or environment affords people to do. As Laurillard, et al. (2000) say, “A designer may describe the features of an educational medium objectively and accurately - learner choice, self-paced, structured index - but the learner may perceive it very differently...Affordances describe how the interaction between perceiver and perceived works - and that is exactly what we need to understand in educational research” (p. 3). These affordances may or may not be what was intended by the original design, however they reveal the users perception of action possibilities or as discussed in chapter 3, actant action opportunities. Additionally, as will be discussed below, affordances tend to sit in relation to one another, setting up networks that regulate the enactment of the various affordances.

As such affordances provide an insight into the “can do” of an environment. “An affordance is a “can do” statement that does not have to be predefined by a particular functionality, and refers to any application that enables a user to undertake tasks in their environment, whether known or unknown to him/her” (McLoughlin & Lee, 2007, p. 666). Determining the affordances of Facebook, arising out of the students’ learning experience, provides an insight into the students’ perspective of learning within the space, whether these experiences and actions were intended or not (Appleseed, 2013).

This chapter will begin by firstly presenting a brief overview of the Facebook Page that was used for the learning activity. Next the Actant-Activity Affordance model framing for these affordances will be described followed by a discussion of the affordances. Lastly a discussion

of the network of relationships between the affordances within the Actant-Activity framing will be presented.

5.2 FabSpace Overview

As discussed in Chapter 4 (Research Methodology), a Facebook Page, called Fabspace was setup as the learning environment for the course. The class, of 38 students (and 3 staff members and 12 outsiders) resulted in a transcript consisting of 663 Posts and 1820 Comments on these posts. All students were made administrators of the Fabspace Page, meaning that they had full control over the Page design and content. The following discussion is based on the analysis of the actant interactions that took place in the Fabspace Page.

5.3 Actant-Activity Affordance Framing

Most researchers reporting on technological affordances tend to produce lists of affordances that are not arranged around any obvious framing. For example Conole and Dyke (2004b) list eight affordances, *viz.* Accessibility, Speed of change, Diversity, Communication and collaboration, Reflection, Multimodal and non-linear, Risk, fragility and uncertainty, Immediacy (and two disaffordances). Later on Conole (2012) lists seven affordances that are somewhat different to the previous list, *viz.* Collaboration, Reflection, Interaction, Dialogue, Creativity, Inquiry, and Authenticity (plus a group of “negative affordances”⁷). This trend is followed by others such as McLoughlin and Lee (2007) who compiled a list four affordances, *viz.* Connectivity and social rapport, Collaborative information discovery and sharing, Content creation, and Knowledge and information aggregation and content modification. While there are some similarities between these and other lists, there is no organizing mechanism as Oliver (2005) points out in his critique of the use of affordances - “there seems to be no unifying concept behind the list(s)” (p. 409).

Exploring literature around e-learning reveals a number of frameworks that have been developed such as McLoughlin and Lee’s (2008) Pedagogy 2.0 framework, Wang’s (2005)

⁷ My contention regarding the concept of “negative affordances” or “disaffordances” is raised as a footnote later in this chapter where previous findings on the technological affordances for learning are compared with the findings arising from this research.

Cybergogy and Scopes' (2009) extended Cybergogy framework. This research focuses on learning within an online environment and as such an appropriate organizing mechanism from within this space seems appropriate.

McLoughlin and Lee (2008) in their later discussion of what they term Pedagogy 2.0, develop a framing around Personalisation, Participation and Productivity. However these frameworks are developed around learning outcomes and psychological models, not around affordances. Affordance theory seeks to conceptualise the action opportunities that occur between actants. In the Facebook environment these activities can either be based around what is said (words) or what is done (works) within Facebook. Furthermore the action opportunities can either solidify the connection between actants (people and environmental) or open the space between actants.

As such the affordances discussed in this analysis are categorized between two axes, the first being an Activity axis, that tends either towards the activity being word based or towards works/action based. In online social space's such as Facebook, most activity is around what is said, *i.e.* the words. "Words" is used in a broad sense, not limited merely to text but includes the use of various word proxies such as emoticons, Like button, images, etc. Works are the activities users do in online social spaces such as creating spaces, customizing the environment, uploading content and other artefacts, etc.

The second axis, the Actant axis, tends either towards solidifying actants' connections or opening actant choices. This is one of the key principles of Connectivism and also one the key components of the meaning of learning used in this research, where meaning making takes place through connections and the solidifying or opening of these connections, whether human or non-human. Actants are deemed to tend towards solidifying when they draw together through words or become tangible through works. Actants are deemed to tend towards opening when they expose or share through words or expand and extend actant spaces through works. This mapping of actants between solid and open not only frames a categorization but also depicts tensions that lie between affordances where the tendency of an affordance to open is resisted by the tendency of another affordance to solidify. This interconnectedness of affordances will be explored in the discussion below.

Using this categorisation it is possible to position the affordances discussed below in the following Actant-Activity Affordance framing (Figure 27).

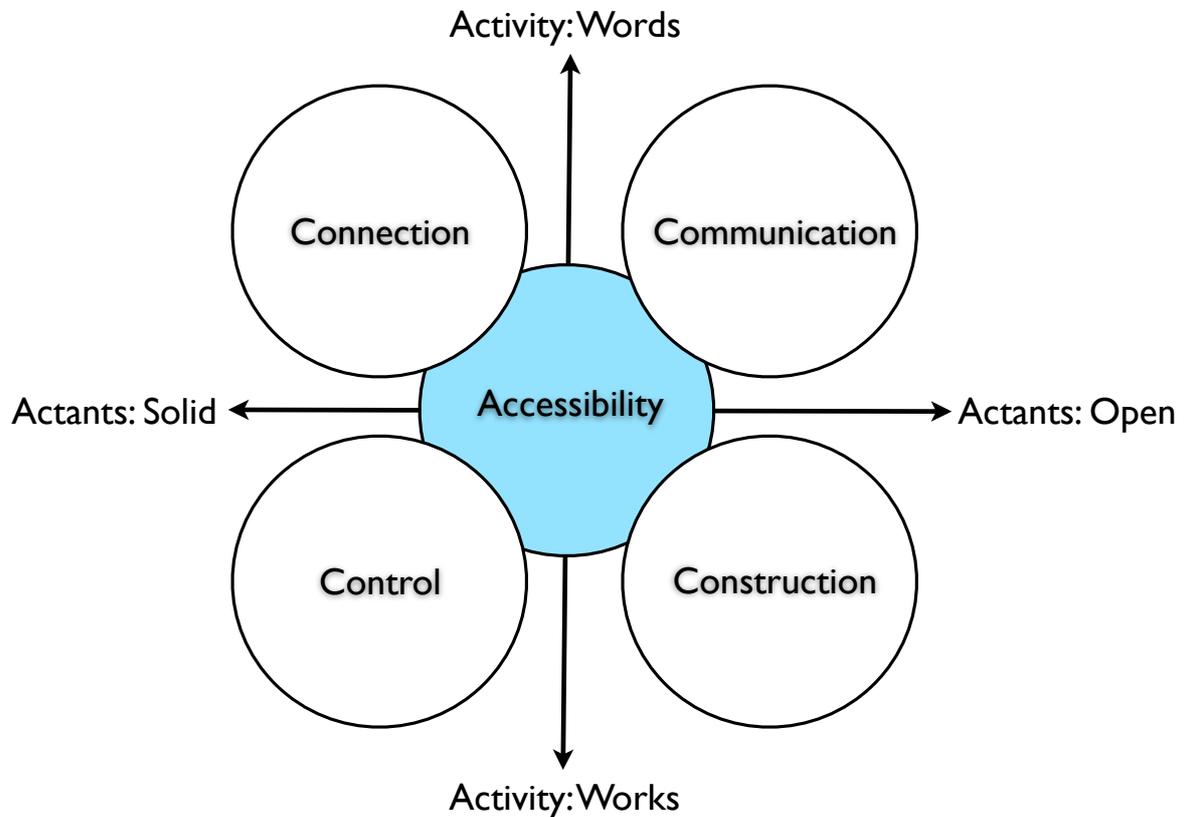


Figure 27: Actant-Activity Affordance framing

The five affordances, arising out of the analysis of the Fabspace transcript, are as follows;

- **Accessibility affordance:** The central affordance, Accessibility, refers to the ability to gain access to the learning space. This is central to realising the other four affordances. This relates to the Connectivism's core principles of autonomy, self-organisation, and openness.
- **Connection affordance:** The connection affordance refers to action opportunities that tend towards solidifying the connections between actants by either removing barriers to connecting or strengthening connections. This relates to the Connectivism's core principles of meaning making connections.

- **Communication affordance:** This affordance relates to action opportunities that allow the actants to expose or express themselves within the learning space. This relates to the Connectivism's core principle of openness.
- **Control affordance:** The control affordance is an affordance that relates to opportunities to control activities in the learning space by imposing or negotiating conformity and affecting changes to the space or other users. This relates to the Connectivism's core principles of autonomy, self-organisation.
- **Construction affordance:** This affordance relates to activities that open up the actant space through the construction of additional spaces. This relates to the Connectivism's core principle of self-organisation.

However, as Latour (1987) says, these so-called affordances are really an assemblage of black boxes "when many elements are made to act as one" (p. 131). So each of the five affordances are essentially "black boxes" that are themselves assemblages where "nothing is, by itself, either reducible or irreducible to anything else" (Latour, 1993, p. 158).

As Harman (2009) explains, this paradox means that in one sense something like religion cannot be reduced to social factors and explained by these various social factors. However in another sense this can be done and even be quite convincing.

The organization of the black boxes of affordances provides a useful purchase on the affordances of Facebook. However while it is not a simple matter to explain these affordances through an assemblage of other affordances it is nonetheless possible to, and desirable to explore such an assemblage. This is particularly true in light of the Critical Realist approach where "affordances arise in the real domain from the relation between the complex assemblages" (Volkoff & Strong, 2013, p. 819). It is the purpose of this research to determine these real mechanisms, and the relationships between them (Banfield, 2003).

As such, each of these "black box" affordances will be "opened" to explore the assemblage

of real affordances they contain, as depicted below in Figure 28.

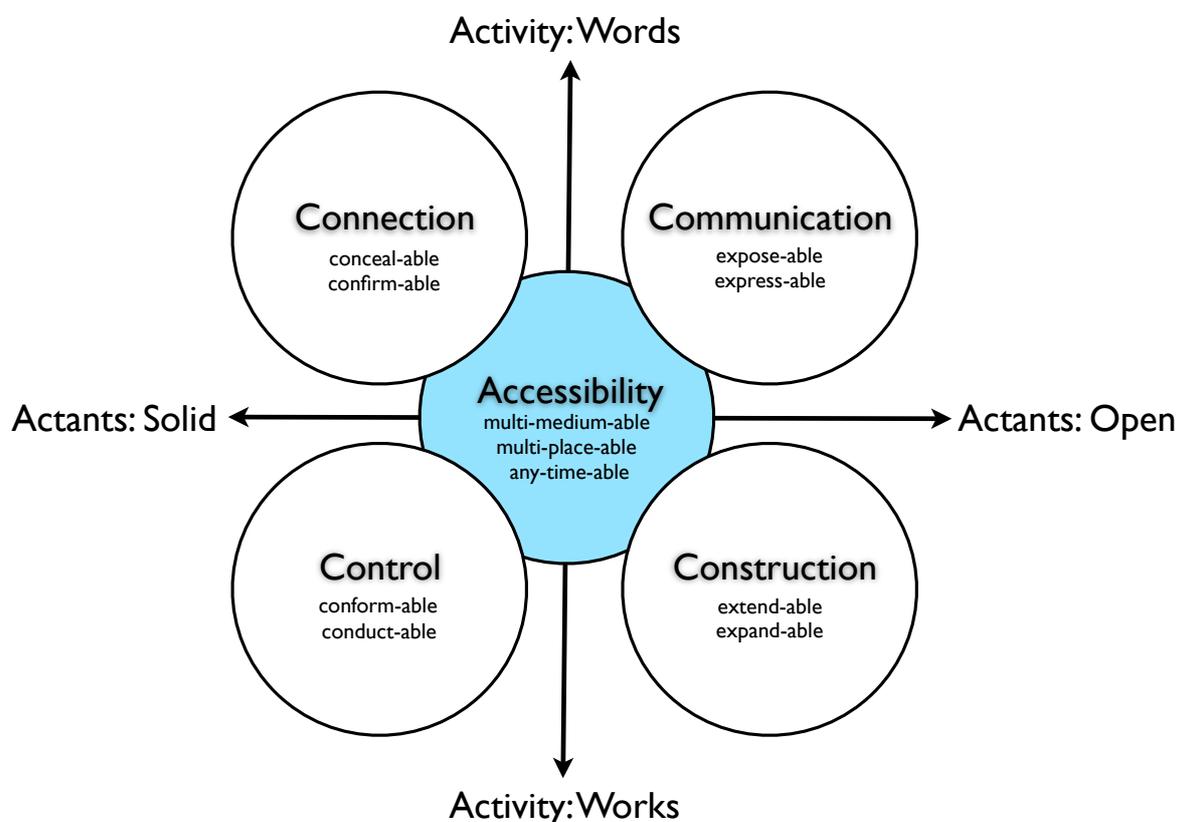


Figure 28: Actant-Activity Affordance framing assemblage

Yet even these assemblages can be disassembled further, infinitely, as Harman (2009) argues, where opening any black box will reveal “that the actant has no sleek unified essence. Call it legion, for it is many” (p. 34). However for the purpose of this analysis two layers will be explored, *viz.* the five layer one affordances and the 11 layer two affordances. The following sections will explore these affordances within the Actant-Activity Affordance framing outlined above.

5.4 Accessibility

The ability to access the Facebook space anytime and anywhere is central to students using the space and hence realising the other four affordances. Accessibility was identified 197 times within the 2483 posts and comments (8%), which illustrates the importance of this in

students' use of the Facebook learning space. The accessibility affordance will be analysed through the three contributing affordances; any-time-able⁸, multi-place-able, and multi-medium-able.

5.4.1 Any-Time-Able

Freedom of time features strongly in both the comments and in an analysis of posting time. The chart below (Figure 29) depicts the spread of times at which posts were made on the Facebook Page. The most striking factor is the distribution across every hour of the day with mini peaks occurring across the day (7:00–11:00, 13:00-14:00, 16:00-19:00, 21:00-0:00). This indicates how students are accessing the Facebook Page both inside and outside of traditional teaching hours (8:00-17:00).

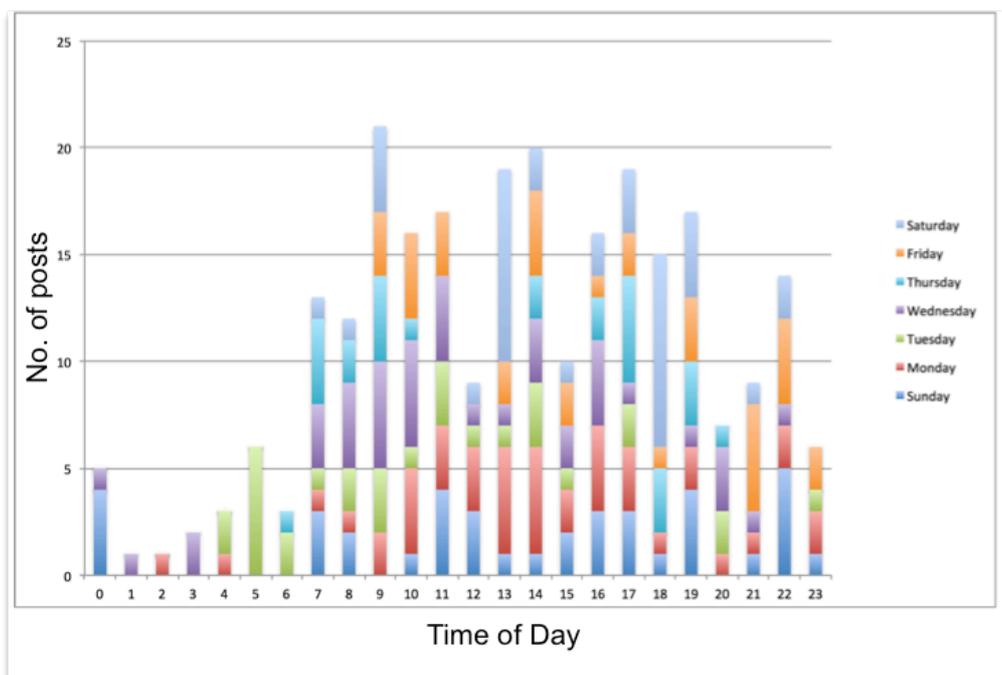


Figure 29: Posts across times of day

Late night and weekend access saw students involved in a range of activity from general chat to late night discussions and debates such as the following;

⁸ Scarantino (2003) points out that Gibson (1979) often used the linguistic construct of [verb phrase]-able when referring to an affordance. For example a cliff has a fall-off-able affordance while an apple has an eat-able affordance. This construct will be used in the naming of the level 2 affordances.

- 
Kaahsifa Ahmed haha Group 3 ROCKS!! ;)

1 March at 00:54 · Like · 1
- 
Fab Space LOL Kaahs when exactly are u planning to sleep 2day??

1 March at 00:59 · Like
- 
Kaahsifa Ahmed just now lol was answering everyones questions on our discussions. Who am i speaking to btw?

1 March at 01:03 · Like

In the following example three students engaged in a debate around the two key contenders in the mobile space, Apple and Samsung. The first student posted an article on this, which then engaged two other students in a discussion between 00:08 (original post) and 02:11 (final comment) as depicted below.

- 
Jvv Vela

Apple vs Samsung... Who will win the war?

<http://www.bbc.co.uk/news/business-17234598>

Like · Comment · 13 March at 00:08 ·
- 
Phomolo Motsilili I wonder who's gonna win this case but i suspect "Apple is trying to cheat the small boy (Samsung)".

13 March at 00:13 · Like
- 
Jvv Vela So u calling Samsung the small boy? I dnt think,

 .

 .

 .
- 
Phomolo Motsilili eish man forgive me "LOL"

13 March at 02:11 · Like · 1

This accessibility affordance is representative of the temporal relationship that exists between the human and technological actors in this Facebook environment (Parchoma, 2013). The environment offers ease of access at any time, an inherent need for the students as expressed below:



Fab Space I think this is true. People somehow have the need to stay connected via their phones and are fulfilling this need all the time by doing so. I am glad to say that I don't have this need. If I am with you/ conversing with you, I would never be using my phone. However, I have experienced this many times with friends and family...I call it that "unsociable time" when the room goes quiet because everyone is busy clicking away. As Teh says, people aren't really paying full attention. Everything now revolves around a cellphone.... Avrishka
19 February at 10:01 · Like

5.4.2 Multi-Place-Able

The second aspect of the accessibility affordance is place. This refers to the range of physical places a student can be and still access the learning environment. The ability to access an online learning environment from anywhere is a key affordance of technology-mediated environments that resulted in comments such as the following:



Valencia Amg Pather It was awesome to be at home and work Tehs! Wen we're done, we cn do as we please for the rest of the day! No travelling to campus! Im very thankful!
18 May at 21:32 · Like

It also provided students who were away with an ability to access the course and their fellow students, and so continue to participate in the learning.



Ebrahim Hassan Adam @my group members, I won't be in Dbn on Monday but am willing to join a virtual meeting :)
17 February at 19:55 · Like

In addition to convenience, the remote accessibility of the learning environment allowed for virtual groups to operate between the two campuses (Westville and Pietermaritzburg) where physical meetings would not have been possible:



Fab Space Kaahs when are we meeting again?

17 February at 19:13 · Like



Kaahsifa Ahmed is this avrishka? we cant phsically meet coz 3of our members are pmb students. we'll just use the group to discuss!

17 February at 19:15 · Like

It also allowed for students to continue with the course when student demonstrations on campus disrupted lectures. The Facebook Page was used as a space to communicate with fellow students about the on-campus developments.



Kaahsifa Ahmed

Hey guys! So i had to turn back when I was entering campus because of the "strikers gone wild" episode. Whats going to happen to our lecture today at 1??? If the lecturers here could help us on this matter plz....Thanks!

Like · Comment · 14 February at 07:07 ·

5.4.3 Multi-Medium-Able

The third aspect of accessibility is the medium of access. While Facebook's main portal is web based, it has been optimised for both desktop and mobile access. 67 posts were tagged as "via Mobile" or "via Camera+" (a mobile app) or "via BlackBerry Smartphones App" etc. Affording mobile access to the students extends the ability of the students to engage with the course material from any location and at any time. The use of mobiles was raised in a conversation where a student argued that it is getting out of control.



Tehseena Meer

Tech News - Week 20 Feb 2012 - Cellphones cause egocentricity

I think that this is partly true. We put ourselves first not really knowing what is happening in the world around us because we can chat from the comfort of our homes instead of going out and getting together in community activities. Also when we are in company, we are still on our phones emailing, BBM other people. So we are not really giving them our full attention. Everything is around you and your phone.

http://www.itweb.co.za/index.php?option=com_content&view=article&id=51696%3Acellphones-may-cause-egocentricity

Another student replied by saying that this has become a need and that “everything now revolves around a cellphone”.



Fab Space I think this is true. People somehow have the need to stay connected via their phones and are fulfilling this need all the time by doing so. I am glad to say that I don't have this need. If I am with you/ conversing with you, I would never be using my phone. However, I have experienced this many times with friends and family...I call it that "unsociable time" when the room goes quiet because everyone is busy clicking away. As Teh says, people aren't really paying full attention. Everything now revolves around a cellphone.... Avrishka
19 February at 10:01 · Like

The use of mobile devices to access Facebook is indicative of a greater trend by the students to use mobile devices as a primary portal to content. Another student expressed how s/he was looking for a blogging application that would work on their mobile device. Additionally this comment was posted “via Mobile” and after midnight further emphasising the multi-medium-able, any-time-able affordances of Facebook.



Fab Space I have used Path a few days ago. Was looking at possibilities for a blog on my phone. Sucks to be me. Lol. It's a lesson for me though :)
18 February at 00:23 via Mobile · Like

Having considered the accessibility affordance and the three contributing affordances (multi-medium-able, multi-place-able, any-time-able) the next sections will look at the four affordances that arise as a result of using the Facebook space for learning. The first two affordances, Connection and Communication are affordances that primarily are associated with what is said (as opposed to what is done) in the space. The first affordance, Connection (see Figure 30), is associated with action opportunities that tend to solidify the links between actants while the second affordance, Communication, is associated with action opportunities that tend to open the space between actants.

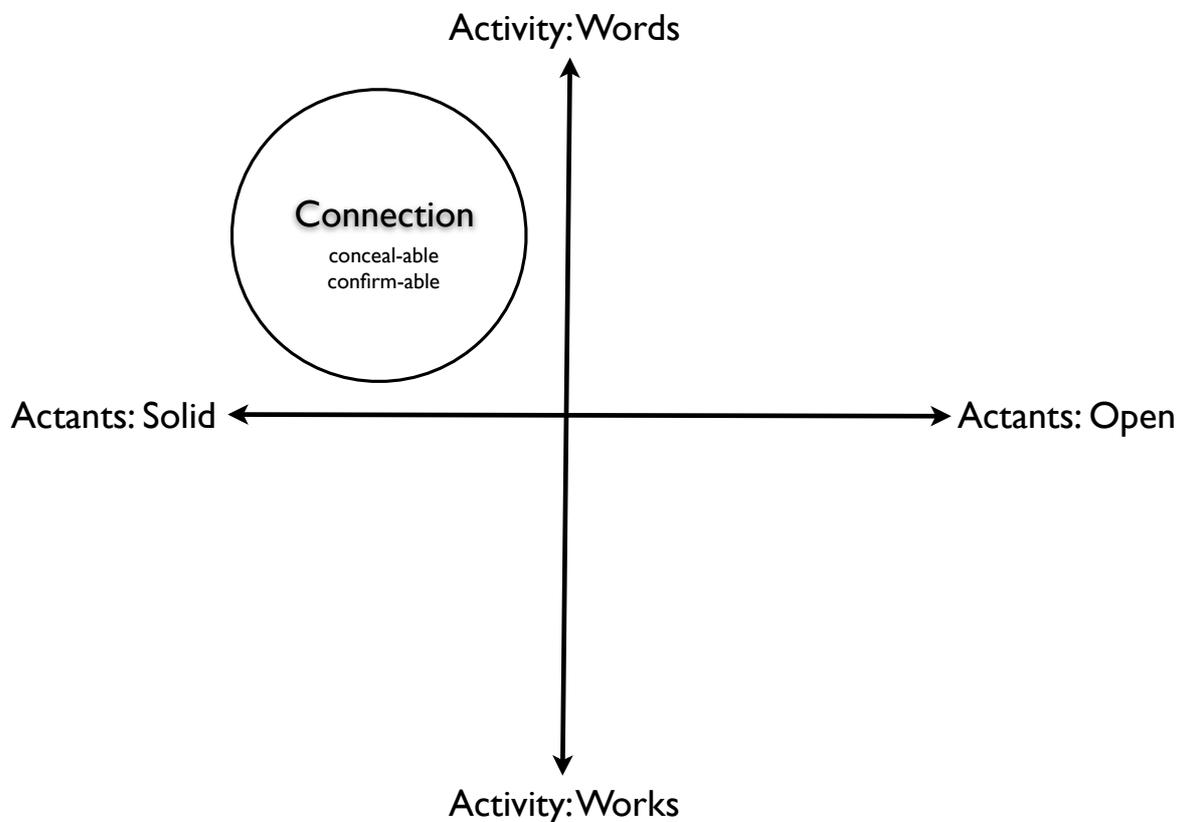


Figure 30: Connection Affordance

5.5 Connection

The connection affordance refers to action opportunities that tend towards solidifying connections between actants by either removing barriers to connecting, or strengthening

connections. The concept of “connecting” is central to social networking sites such as Facebook as is demonstrated by Facebook’s signup page (Figure 31).



Figure 31: Facebook signup page

However this connection affordance is not just meeting friends, but affordances to solidify connections between actants within the space. This is a key affordance in terms of the connectivist definition of learning that sees learning emerging from meaning making connections. An analysis of the student usage of Facebook reveals that this affordance consists of two key affordances that together assemble to offer the connection action potential, *viz.* conceal-able and confirm-able.

5.5.1 Conceal-able

The conceal-able affordance specifically indicates the usefulness of adopting an affordance framing rather than a feature-based perspective. Facebook provides various spaces for engaging (see Chapter 2) and each of these has features specifically designed to make the space useful for its intended purpose. For example Groups allow for easy control of members plus they also support storing files. Pages on the other hand, with their focus on business and organisations, provide a variety of tools for the administrator to manage posts and analyse activity on the Page. One of the features of Pages is the ability to allocate administrator privileges to multiple people, as is depicted in Figure 32 below.

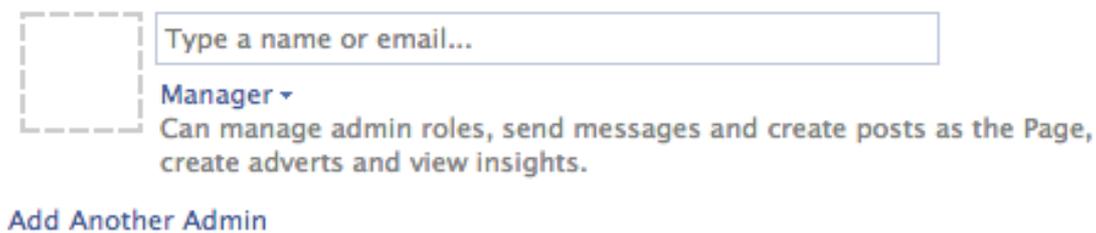


Figure 32: Assigning Admin privileges

This privilege enables the person to perform a wide range of activities to both the Page and members of the Page. Other affordances arising from this will be considered below under the Control affordance. However in giving this privilege to a user, the user by default posts as the Page name. So in the Fabspace Page all administrators by default would post as “Fab Space”. The intention of this is that the administrator of a Page represents the organisation and therefore all administrators’ posts appear as though they come from the Page/Organisation. However while designed for control and uniformity, the feature nonetheless contains an unintended affordance of concealment and anonymity.

As all students were given administrator privileges all the students by default posted as the Page name (Fab Space) as depicted below.



It was possible to change from posting as “Fab Space” to the user’s Facebook name and vice versa as depicted below (Figure 33), however by default all posts (students and staff) appeared as coming from “Fab Space”.

You are posting, commenting and liking as Fab Space — Change to Craig Blewett

Figure 33: Changing "Posting As" Name

This afforded the students an opportunity to conceal their identity, thereby reducing concerns of “looking silly” or fearing consequence as a result of challenging others (lecturers included). This affordance created opportunities to solidify relationships between lecturers and students and potentially even between the students themselves.

While all members of the Facebook Page started out as anonymous (posting as the generic FabSpace) most changed their name (28) with some (12) remaining anonymous the entire course. Figure 34 depicts the percentage of posts each week as a ratio of named to anonymous (FabSpace).

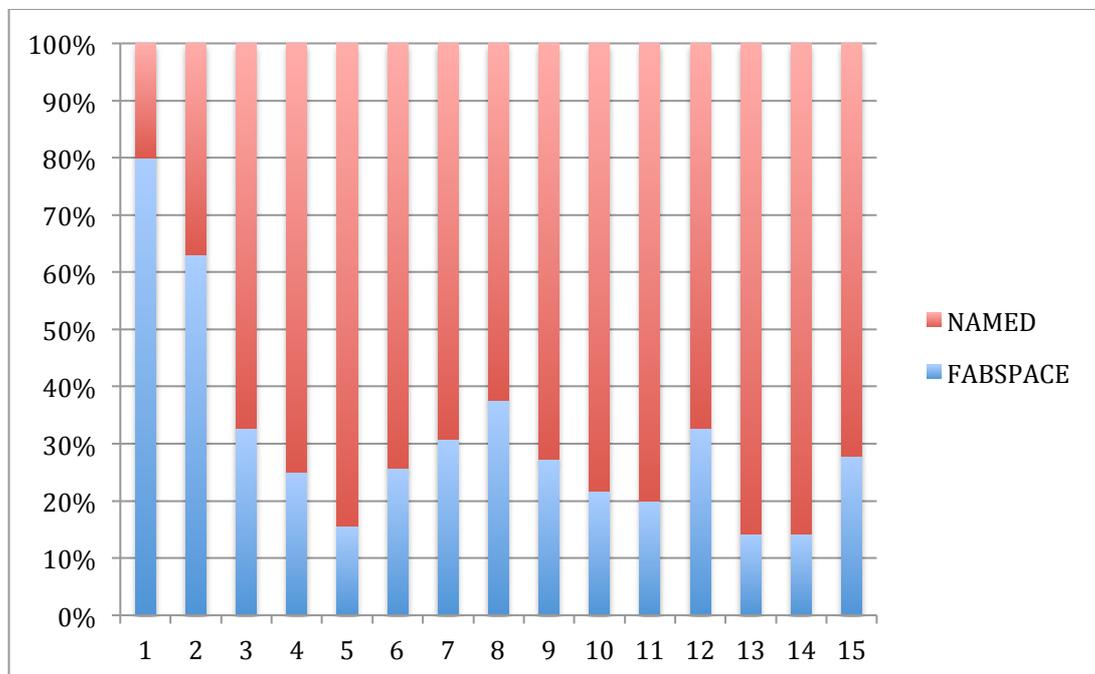


Figure 34: Comparison of Named and Anonymous Posts

The first week had 80% of students posting as anonymous (Fabspace) and 20% posting as identified. This changed quite rapidly dropping down to just over 30% of the posts being anonymous by week 3. There was some fluctuation over the course with an average of 25% of posts being made anonymously from week 3 to week 15.

Anonymity afforded by Facebook enabled students to ask questions of the lecturer that they might have felt uncomfortable asking. The following is an example of a student using this affordance to ask for an extension to a project deadline.



Fab Space

can we plz get an extension for the VW build, honours is bliss bt ryt nw its torture

Interestingly another student picked up on this use of the conceal-able affordance and pointed it out in a reply to this post as depicted below.



Tehseena Meer lol, I see sum1 made use of being anonymous to post.

The use of the personal cloaking provided by Facebook was not just used to enable students to make vertical power requests (student-to-lecturer) but also to make critical horizontal (student-to-student) power relationship remarks. The following discussion reveals such an example where Thabo made a post attempting to explain why other groups were having problems accessing some of his group's work and a fellow student, posting as "Fab Space", critiques Thabo's "excuse".



Thabo Manqele

Incase you've been having problems with viewing our brochure on the Page please view it on google Docs
No permission needed. Please let me know if its not working>Thabo

<https://docs.google.com/open?id=0BxHgaqiSu1U0aEdOWFVodWZUVTYtTjRHRGtXQlhEUQ>
www.google.com

Like · Comment · Share · 29 February at 12:10 ·



Thabo Manqele but the picture quality is not that great here
29 February at 12:13 · Like



Tehseena Meer you can zoom in
29 February at 15:54 · Like



Fab Space Just a fair comment,how come most of your work always have a problem to access or to load?
29 February at 21:51 · Like

However while the Facebook Page afforded concealment, this was not something that everyone appreciated. During the course Facebook changed the way Pages were organised by introducing the timeline feature. Administrators were given an option to adopt the timeline feature or remain as they were up until a certain date. While the implications of this will be unpacked further under the Control affordance what is interesting is how students made use of the conceal-able affordance during the debate.

The first respondent to the suggestion that the timeline should be adopted posted the comment as FabSpace however she tagged the comment with her name thus waiving her concealment as depicted below.



Fab Space NO!!!!!!!!! I suggest we start an anti timeline protest, I don't like the feature PERIOD....(Samu)
29 February at 20:25 · Like · 1

However, soon other participants in the debate were posting anonymously, causing others to question who they were, as shown below.



Fab Space Yes Kaahsifa Ahmed...."1st it was BB this BB that,then so n so checked in at King Shaka airport, this n that NO! Im leaving for Twitter " (in Trevor Noah's voice) LOL
29 February at 21:18 · Like



Ebrahim Hassan Adam lol who is this?
29 February at 21:19 · Like

The discussion continued with multiple inputs from anonymous posters and several requests for them to reveal themselves



Kaahsifa Ahmed lol u guys need to state ur names dudes
29 February at 21:36 · Like



Thabo Manqele Please when you post as Fab Space, tell us who you are. It makes it easy to respond to you, thank you.

Being administrators, the students could also adjust any aspects of the Page. By default the Page contained no cover photo and so one of the students under the cloak of “Fab Space” adjusted the cover photo to be an image of the Westville students, and not the Pietermaritzburg students, who were also on this course, as depicted below.



Fab Space updated their cover photo.



Like · Comment · 1 March at 10:02 ·

However this was picked up by another student in the class who complained that this was not a fair cover photo as it did not represent all the students taking the course. He then asked who had uploaded this as the cover photo, but their identity remained concealed.



Thabo Manqele

Im sorry but I think putting a picture that includes only Westville students which also includes some who are not part of CMC is unfair for our PMB Friends.

Like · Comment · 1 March at 10:21 ·

Kaahsifa Ahmed and Siyabonga Duma like this.



Thabo Manqele I meant putting the pic as this pages Banner.

1 March at 10:23 · Like



Kaahsifa Ahmed who did this thabo??? who put the timeline!!!! lol! i hate u ppl aaahhh

1 March at 10:41 · Like · 1



Thabo Manqele I dont know who did, I dont have a problem with the timeline just think we need something that represents us all so I vote we change the picture. Unless the person who put it can justify why. Which I doubt they would.

1 March at 10:43 · Like

The implications of the conceal-able affordance of online spaces were raised as a topic by a student, who suggested that people should use their real names online. Various opinions were put forward with one student, while posting anonymously, but tagging her name to the post, arguing that “you should stand up for what you say and reveal who you are”.



Phomolo Motsilili Ok if we only going to use names to be known, that's still not enough, names are just names. My name is Thabo , no my name john am sorry my name is which is which, you will never know. personally i still think this should be a choice not a rule.

12 March at 21:58 · Like



Fab Space I agree with Phomolo...I don't think it's the fact that people have something to hide. But then again, if you have something to say and its a controversial topic which becomes out of hand a little, I think you should stand up for what you say and reveal who you are... Avrishka

12 March at 22:35 · Like · 1

Interestingly, a fellow student as indicated by the reply below picked up the fact that Avrishka was still using the conceal-able affordance.



Phomolo Motsilili Avrishka man just very true but my question is why you still under cover "LOL", you name man.

12 March at 22:40 · Like

While students continued to make use of the conceal-able affordance there were suggestions by students, such as the one below to “force” students to reveal themselves despite the affordance being available.



Kaahsifa Ahmed @Craig: This is just my opinion, but if your'e going to do this next year then force them to change from Fab Space to their name lol :x

10 May at 08:38 · Like

Connectivism requires that learning networks are open in order to increase engagement, and according to Downes (2009) thereby generate knowledge. The existence of the conceal-able affordance provides a means for this openness to exist while at the same time encouraging student participation. So while the conceal-able affordance tends to solidify connections between actants it is resisted by other more opening affordances, such as confirm-able and

expose-able while at the same time attracting affordances such as express-able and conduct-able, as will be discussed later.

5.5.2 Confirm-able

The second affordance contributing to the connection affordance is confirm-able. While face-to-face communication allows for the use of various non-verbal cues such as nodding of the head or verbal cues such as “yes”, “uh-huh”, etc. to indicate confirmation or affirmation during a conversation, this need is fulfilled in several other ways in Facebook. Similar to verbal communication, the use of phrases such as “I agree”, “yes”, can be included in the text. However in addition to this the space provides a variety of other ways of confirming connections between actants.

The easiest, and often used way of doing this, is clicking the Like button in response to a post or comment as depicted below.



Doing this results in a count being displayed (2 people Liked the above comment). 19% (472 of 2483) of the posts/comments in Fabspace had one or more Likes associated with them indicating the extent to which this confirmation/head-nod was used.

However in addition to confirming posts through clicking of Like, it is also possible to confirm posts through a variety of other proxy devices such as hash tags (#tags) as depicted below.



This provides a more “explicit” confirmation than simply increasing the Like counter. However, while this is more explicit, the impact of clicking Like, among other things, impacts the positioning of the post/comment in the stream and how many other people’s streams it is reflected in (Constine, 2012). This will be explored in more detail in the next chapter when how the students learn in Facebook is analysed.

Besides Likes causing a post to become more visible, the fiat currency of Likes is expressed in the following post where the student sees the number of Likes as a representation of the importance of the person and/or their post.



Fab Space shared **Thabo Manqele's** status update.



Thabo Manqele

Mark getting 444175 likes and 150 comments on his status update about him getting married. Cashing mega likes like a Boss lol, well its his Facebook any way :D

Post or comment confirmation was also possible by doing what is referred to online as a “shout out” for another person. This involves drawing attention to what another person has done as a show of support for that person. In the example below a student created a forum where links could be posted for a chat room session that was forthcoming.



Tehseena Meer

I've created a forum for the group chat room links as **Kaahsifa Ahmed** suggested. Please add on your groups and check that you can view the others

Like · Comment · 22 February at 09:31 ·

Kaahsifa Ahmed likes this.

Firstly Tehseena “credits” Kaahsifa with the idea by tagging her name in the post, thereby using @name tagging to help confirm the post. This would cause this post to appear on Kaahsifa’s timeline thereby also solidifying the connection between them. This resulted in Kaahsifa both Liking the post (as depicted above) and offering further confirmation of this post by creating an additional post as depicted below.



Kaahsifa Ahmed

Hey guys! Tehseena created a forum for us to post links to each of our group chats so we all can have an organized and successful session tomorrow. Please add your links so your'e not left out of the event. Heres a link to the forum...

<https://apps.facebook.com/forumforpages/181057895332311/05f7a09f-8185-40cf-8b7f-08523c3eced9/0>

Forum for pages

apps.facebook.com

Forums for pages is a Facebook application that allows owners of Facebook pages to add a discussion...

Like · Comment · Share · 22 February at 18:37 ·

Ebrahim Hassan Adam that's so nice :P

This post also received a “verbal” validation through Ebrahim’s comment, “that’s so nice :P”.

In another example Thabo does a shout out for something that Nigel had done but had not posted about. Thabo’s shout out causes this otherwise unseen activity to appear in the Fabspace stream thereby generating exposure and confirmation for the activity.



Thabo Manqele

By the way Nigel created a space on the forum where we can all post our blogg links. This will help some of us to easily access your blogs

Like · Comment · 18 February at 17:28 ·



Fab Space yeah i thawt it mite be a good idea instead of clutering up the wall

18 February at 17:42 · Like

Verbal confirmations were commonly used in addition to Like’s, shout outs, and #tags, to confirm posts. Examples of these include the following;



Kaahsifa Ahmed Good eye Thabo! This is great!
18 May at 19:56 · Like



Mesuli Cyril Bonga Zuma hahaahahhahahah I like it
10 May at 09:27 · Like



Brian Ntebza Dilebo @ Kas I agree, cos I used to post as
fabspace for a while at the beginning
10 May at 09:58 · Like

While both the confirm-able and conceal-able affordances contribute to solidifying actant connections there is however a tension between them. While the conceal-able affordance affords freedom of expression it can result in less confirmations. In the following example Ebrahim is informed that Fabspace has liked his post. However he then enquires as to whom this is, indicating the relationship between identification and confirmation.



Ebrahim Hassan Adam
The look on peoples' faces when you tell them you study an Honours
course based on Facebook :D
Like · Comment · 23 February at 08:13 ·

Fab Space likes this.



Ebrahim Hassan Adam whose FaB Space?
23 February at 08:24 · Like

So while both these affordances tend towards solidifying, the confirm-able affordance is resisted by the conceal-able affordance. This is further demonstrated by the fact that out of the 472 posts that were Liked only 72 (15%) were for posts made anonymously. However the confirm-able affordance attracts towards the conform-able and conduct-able affordances as discussed later.

It is important to further note that Likes (as will be discussed in more detail in the next chapter) also cause comments to be more prominently featured. As such the technological platform causes conversations to be more or less visible, based on activity related to the

conversation thread. This is a key tenet of emergent learning environments based on Connectivism, where learning and knowledge are argued to also reside in non-human nodes.

The Connection affordance relates to action possibilities for students to solidify relationships between actants in the learning environment. While both the conceal-able and confirm-able affordances enable this connection, they themselves push against one another and other affordances.

5.6 Communication

The second set of affordances are the Communication affordances (Figure 35). These affordances relate to action opportunities that allow the actants to expose or express themselves within the learning space.

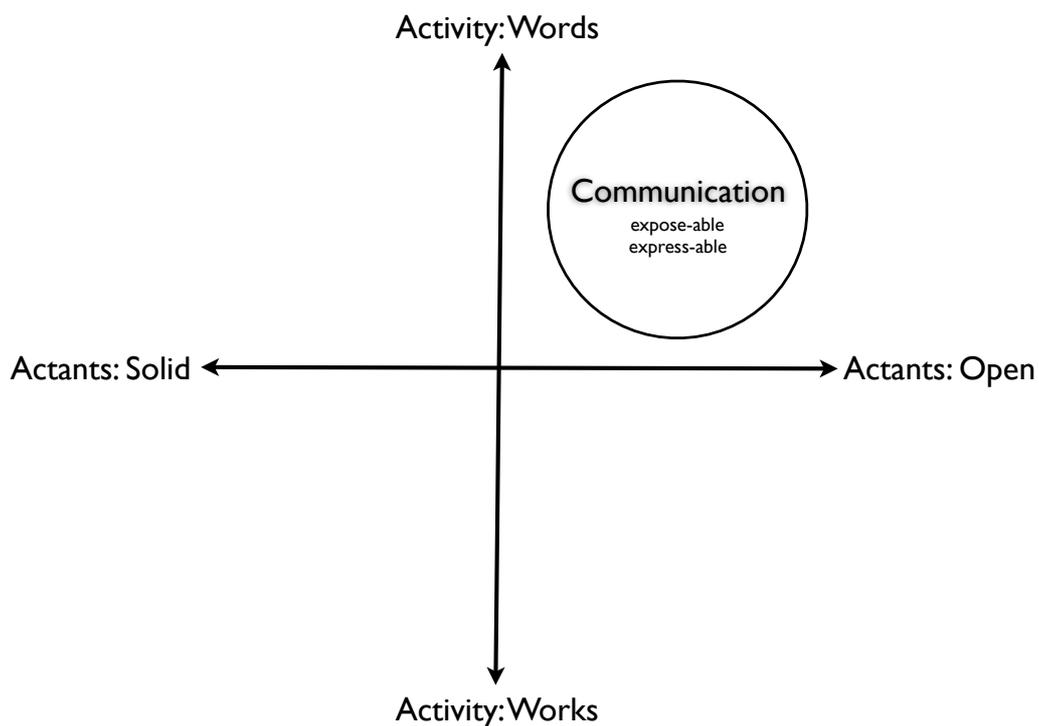


Figure 35: Communication Affordance

Unlike the connection affordance that tends towards solidifying connections between individual actants, this affordance seeks to open actants to multiple others both those within

and without. The assemblage of affordances that contribute to the communication affordance are the expose-able and express-able affordances.

5.6.1 Expose-able

Facebook is designed around a series of activity spaces each of which is designed for a specific purpose (see Figure 36).

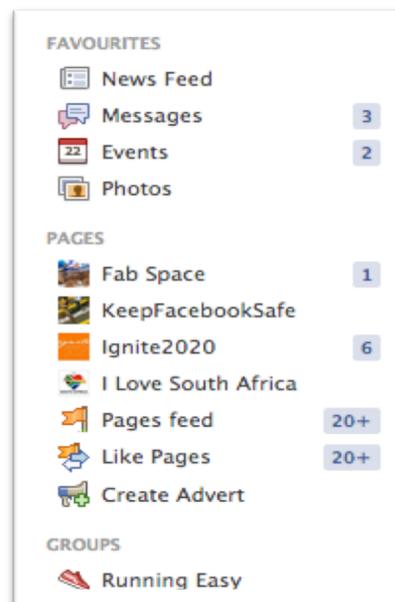


Figure 36: Facebook Spaces

For example, “Groups provide a closed space for small groups of people to communicate about shared interests” while “Pages allow real organisations, businesses, celebrities and brands to communicate broadly with people who like them” (Facebook, 2013c para. 1).

Other activity spaces include Events and Apps. However, activity on all of these spaces (subject to settings) is presented as an integrated feed on the main Facebook wall (Home page/News Feed). So while the various spaces can be used to connect with different groups of people (learning group, sports team, etc.) or for different purposes (socialising, organising, gaming, etc.) the activity from these spaces appears on the Facebook walls of all those

involved, thus exposing the activity across multiple places. There is an ebb and flow of information to and from the various spaces as depicted in Figure 37 below.

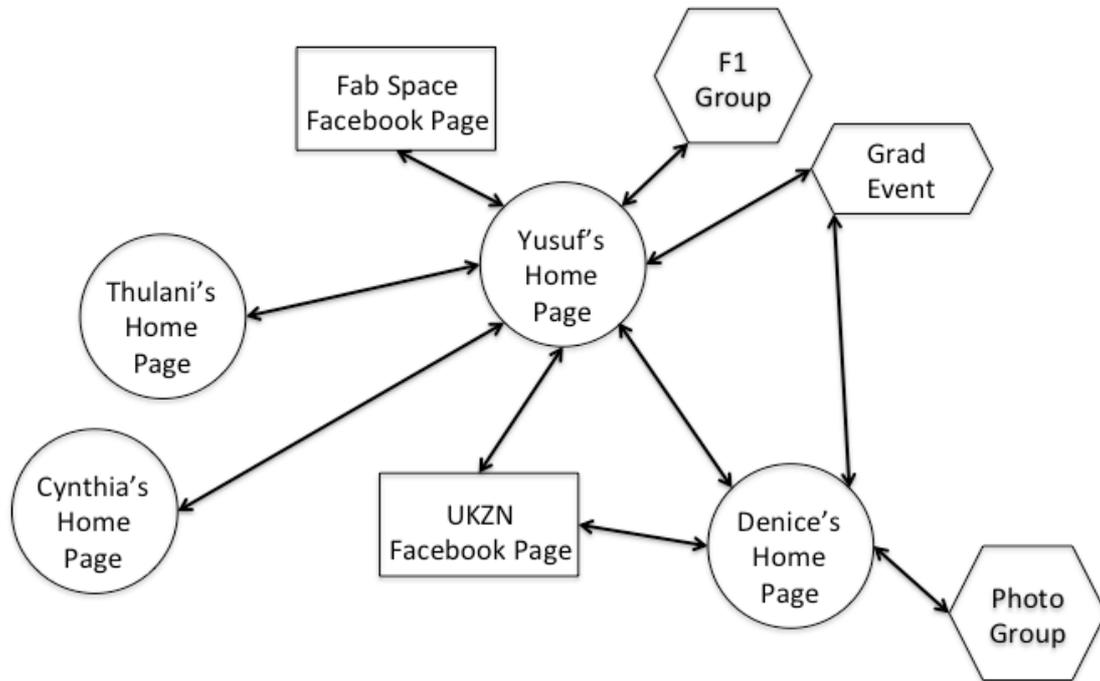


Figure 37: Flow of information between Facebook spaces

Here, for example, the posts made on the Fab Space Facebook Page reflect on Yusuf's Home Page and are therefore (subject to privacy settings) exposed to Thulani, Cynthia and Denice. However in addition to this, the posts from a variety of other sources (Fab Space Page, UKZN Page, F1 Group, Grad Event, Thulani, Cynthia, Denice) are all collated onto Yusuf's Page. This automated curated feed feature of Facebook results in a form of content singularity where all the content is accessible in a single feed. Instead of the student accessing their social space (Facebook) and an external learning space (for example Moodle) all activity within the Facebook learning space that was set up in a Facebook Page appears in the students' Home page feed.

There was some student discussion about a new feature Facebook was introducing (Interest Lists) and how Facebook was constantly adding new features to compete with rivals such as Google+ and Twitter.



Thabo Manqele

Lol so like Facebook to do this, they did it with google+ hangouts when they introduced Lists which we hardly ever use. And now another feature that I still dont think we will use as much as they hope. What can I say, its facebook.

However the students expressed an unlikelihood of them using this new feature, as what was most important was not features, but a single space where all content is automatically curated to.



Tehseena Meer lol, doubt i'll use it bt fb has too keep up with the competition

12 March at 19:33 · Like



Ebrahim Hassan Adam too many features. I simply subscribe to pages/groups and all comes to my newsfeed... won't be using this new feature

13 March at 00:32 · Like

While there is debate about the desirability of integrating a social stream with a learning stream (Madge, et al., 2009), a key affordance of Facebook is the content singularity where students are exposed to a multiplicity of content sources within a single space, thereby potentially increasing engagement due to increased visibility. This single space, that is a blend both of course content and social content, is different to that found by Veletsianos and Navarrete (2012) in their study of online social networks for learning. In their case they made use of Elgg, a SNS designed for learning, and found that “students limited their participation to course-related and graded activities, exhibiting little use of social networking and sharing” (Veletsianos & Navarrete, 2012, p. 1).

While this particular course used Facebook as the online learning environment, the students were also using the University provided Moodle site (<http://learning.ukzn.ac.za>) for other courses. Moodle has many of the same features as Facebook, such as the ability to post messages, engage in online chat, upload media, etc. However Moodle is positioned as a

“Course Management System (CMS), also known as a Learning Management System (LMS) or a Virtual Learning Environment (VLE)” (Moodle, n.d.) and as such is a separate learning space distinct from the students’ online social spaces. The expose-able affordance appeared to increase content visibility, as is illustrated in the post below. Here a student uses the Fabspace learning Page to draw attention to a post in Moodle, assuming that her fellow students would not have seen it.



Tehseena Meer

I know this is not the place but I just thought I'll let you know that tutorial 3 is out for research so u'll come prepared. check learning.ukzn.ac.za

Like · Comment · 2 March at 13:43 ·

However the flow of information is bidirectional as indicated in Figure 37. This implies that while content from Pages and Groups etc. “flows” to the user’s page, it is also exposed to his/her friends (in accordance with their privacy settings). This expose-able affordance can therefore result in potentially private/unintended conversations also being included back into the learning space stream. The following conversation is an example of this taking place.



Tehseena Meer That is crazy how can you create a patent on interactive features? They would make millions and it would not be fair at all.

14 March at 08:59 · Like



Valencia Amg Pather Um...so if they shutting down facebook on March 15 2012...that means that thats tomorrow...so wat about CMC?...n al the crap we've endured in the last few weeks learning on this damn thing...n all our info and all our time spent reading that damn tech news...sum1 please sue Zuckerberg for refusing us our ryt to learn! Lol...u think that'l hold?

14 March at 18:27 · Like



Kaahsifa Ahmed itsa hoax

14 March at 18:30 · Like



Valencia Amg Pather Lol...hw did my comment come to this link? I commented on ur link Kaahs....lol

14 March at 18:32 · Like



Tehseena Meer lol

14 March at 18:44 · Like

There were multiple examples (54 comments) of non-students interacting in the Facebook learning page. The following comment by an outsider (Mitha) shows his surprise at the expose-able affordance, but indicates how comments from the Fabspace Page flowed into his news feed via his friend.



Muhammed Mitha Why am I allowed to post here ?

22 February at 22:09 · Like



Ebrahim Hassan Adam lol how did you end up here mitha?

22 February at 22:10 · Like



Muhammed Mitha Its part of my news feed

22 February at 22:53 · Like

So while the expose-able affordance created a flow of information outward it also caused outsiders to be drawn into the Facebook Page. In the following example Ebrahim, who was

moving for closing the space to outsiders (discussed in more detail under the controlling affordance) made the following tongue-in-cheek remark to the outside poster (Mitha).



Ebrahim Hassan Adam lol mitha, i was saying so to tehseena, see! this is why the page should be unpublished :P
11 March at 23:13 · Like

This expose-able affordance resulted in an opening of the space beyond the class, as such drawing in conversation and information from a wide range of people. On occasion this ability to open the space out was intentionally used to draw outsiders into the learning space and the learning discussions. The following example shows Ebrahim (a student on the course) using an @name reference (which would cause this post to appear on the named person's wall) to draw the outsider (Abdul) into the conversation.



Ebrahim Hassan Adam <http://quantum.ukzn.ac.za/> – see this... parts have been implemented already. Abdul Mirza, will you be able to enlighten us on this bro? :) Mirza is a member of this project since it started (i think)...
29 February at 21:21 · Like

However, while the expose-able affordance can result in enriching communication it also has the danger of impeding communication either through additional “noise” or language and behaviour that would not normally be expected in a course context. An example of this occurred when a Chat Room was used within Facebook for an online discussion. The Chat Room application did not have a privacy feature resulting in the following discussion from the students.



Thabo Manqele

I think its time we closed our chat rooms now coz Random people have started getting in and they swear as well too

Like · Comment · 23 February at 12:32 ·



Tehseena Meer its a pity we had to make it public

23 February at 12:44 · Like

The expose-able affordance, while part of many online environments is not expected in learning environments. Learning is traditionally seen as closed and students are only exposed to those who are part of the course. This surprise at being able to participate in a “closed” course is expressed in the following conversation where an external person (a student from another course) makes a comment on some content posted by a student on the CMC course.



ZeMaximizer Ndaba Lol. . I also dont understand y this is called 'tech' news

2 March at 22:18 · Like



Thabo Manqele but Max you not even part of Fab Space

2 March at 22:21 · Like



Kaahsifa Ahmed Aah shame dont chase him

3 March at 05:35 · Like



ZeMaximizer Ndaba it should not appear on my facebook then...if im not part of it, it should not permit me to comment nor see it...now because I see it on my facebook and can comment, then who can stop me?...hahaha.....you "IS" people..lol

3 March at 07:40 · Like



Kaahsifa Ahmed lol u COMP SC ppl and your technicalities :P

3 March at 10:59 · Like

The expose-able affordance demonstrates another of the key principles of connectivist learning, and that is openness. Downes (2009) argued that it is vital that there is open and diverse dialogue in order to generate knowledge. By the students' posts being exposed to the public, the inclusion of outsider views was a standard part of the learning experience.

The expose-able affordance enables students to easily see content in a single space by creating bi-directional flows between multiple spaces whether private, social, educational, etc. However this affordance exists at tension with itself, whereby on the one hand it affords a form of content singularity, a convenience, yet on the other hand it can result in content being exposed to those for whom it was not intended. As will be discussed later, it also resists the extend-able affordance while attracting the expand-able affordance.

5.6.2 Express-able

The second affordance contributing to the Communication affordance of Facebook is the express-able affordance. This describes the action opportunity for students to express themselves through Facebook.

Expression is germane to the Facebook environment. The Facebook Page Fabspace presents the user with this invitation to “Write something...” at the top of the page (Figure 38).

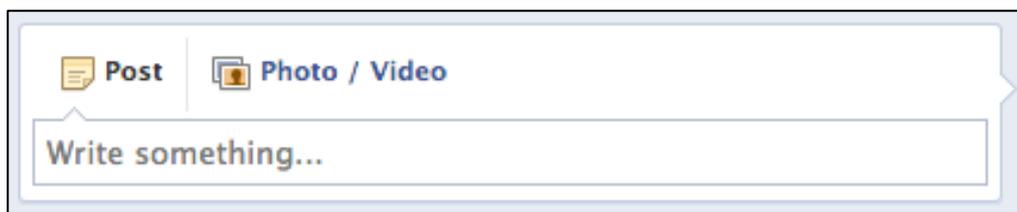


Figure 38: Facebook Page Post Invitation

Users of Facebook are either invited to write something through these Posts, or to Like, Comment, or Share in response to a post as indicated below (Figure 39).



Figure 39: Like, Comment or Share

The Facebook experience is built around sharing, either by creating new content, responding to content, or sharing existing content. The Facebook post invitation to “Write something” and the Comment box’s similar invitation to “Write a comment” (Figure 40) both impose no structure or expectation upon the student. The simple invitation to enter a comment or share content does not prescribe the format, language, style, or tone of the content.

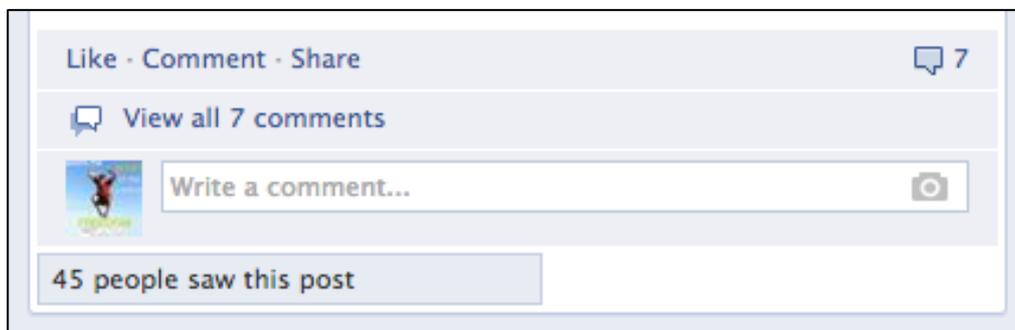


Figure 40: Facebook Comment Invitation

This invites a wide range of potential responses from the students and a variety of opportunities for opening the actant space.

Hugo (2013) discusses multiple pedagogic variables that can be brought to bear in a multiplicity of combinations, in understanding the educational space. Three of these pedagogic variables that can be manipulated are selection, sequence and pacing. A solid instantiation of the variable indicates no choice whereas an open instantiation indicates wide choice. Using this as a frame it is possible to explore how the express-able affordance of Facebook opens up the selection, sequence and pacing variables despite a formalised (solid) curriculum and content.

In the CMC course used for this research the selection of the content that would be covered was clearly framed (solid). Not only were the content topics outlined in the module guide (see Figure 41 below) but each week an activity was set that detailed the content to be covered for the week.

LIST OF CONTENT TOPICS

-  Principles of CMC & Introduction to Web 2.0
-  Communication and engagement in Social Networks
-  Online teams and collaborative tools
-  Virtual Worlds – education, business, entertainment
-  Theoretical review of Second Life
-  Design and use of spaces in Second Life

Figure 41: Content Topics from CMC Module Guide

This would indicate a solid state for the selection variable, *i.e.* a limiting of what content can be discussed. However while the specific content topics were not selectable, the Facebook environment nonetheless afforded an opening of the selection variable by allowing students to decide what content they chose to bring into the Page around these content topics and others.

An analysis of the 663 posts reveals that 62% (408) were about content, while 38% (255) were non-content posts (see Figure 42).

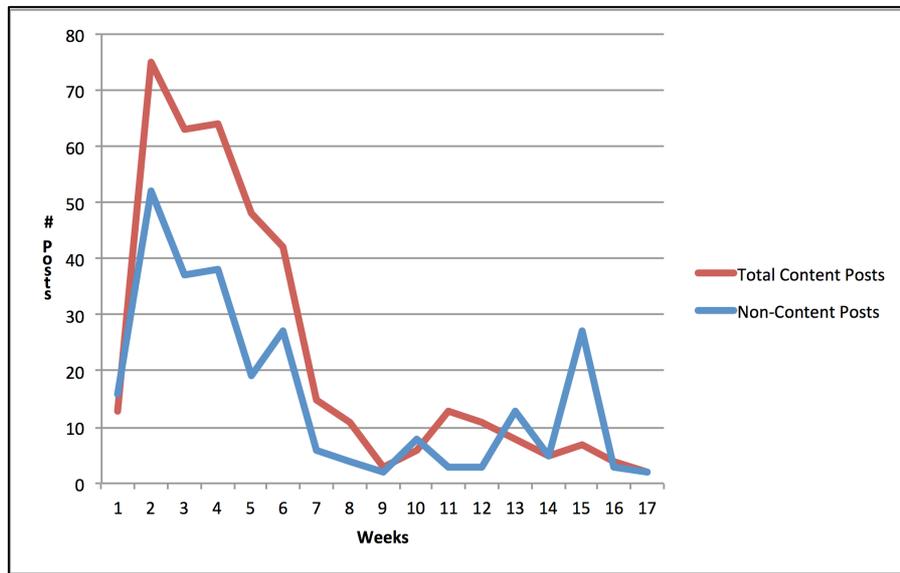


Figure 42: Content and Non-Content Posts over time

While posts on the course content are expected, what is interesting is the range of posts on non-content topics. This reveals how the space affords students an opportunity, due to related affordances such as conceal-able, expose-able, etc. to express views on a range of topics.

An analysis of the posts reveals a wide range of posts and comments from course content, to social content, to content related to other courses. The following chart (Figure 43) shows the top 10 most used terms within the posts, signalling some of the top trending topics.

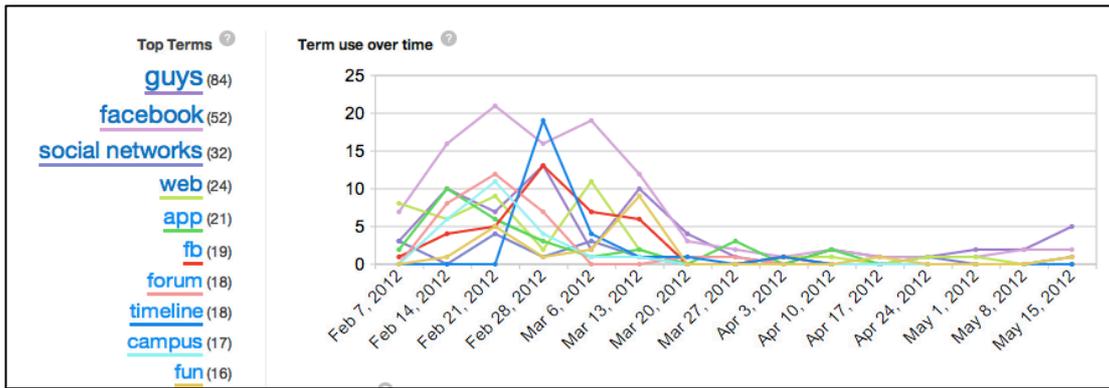


Figure 43: Top Terms mentioned in Conversations (from skyttle.com)

Several of the commonly used words such as “facebook”, “fb” “social networks”, “app” and “web” relate to content discussed on the course. However these topics often resulted in an opening out to other topics, both content and non-content related. This even included opening out the discussion to debate the merits of the Facebook learning environment itself as illustrated in the discussion below.



Phomolo Motsilili

Good morning .To everyone, i would like to ask:Guys do you think its possible that we can have all our honours modules runing here of facebook. the thing i feel CMC alone makes us extremely busy and i can imagine if we had two or 3,4. am sure we would give up the program, i mean we would defferently fail to cop with the programe the program might have to take two year. thats my Opinion . what do you think ?

Like · Comment · 9 March at 01:19 ·



Tehseena Meer i think it would take the same amount of time. u would have to look at the content to see if its feasible teaching it online and if it were online we wouldn't have lectures so would be the same thing.this module cmc is computer-mediated communication so obviously requires us to do a lot of work online but other modules might not require that.

9 March at 13:43 · Like



Phomolo Motsilili i get what you are saying about CMC , but what i mean what if all courses run here, all IT modules.

9 March at 13:59 · Like



Tehseena Meer if all ran online we wouldn't have lectures so less fees, lol

9 March at 14:01 · Like



Phomolo Motsilili lol

9 March at 14:13 · Like

The way in which students brought content on a range of topics into the Facebook Page is indicative of how the selection variable was opened in the space despite formal content guides and activities.

The second pedagogic variable that can be considered is the sequence variable. Once more, while the overall sequence of the course was set out through the module guide, students could nonetheless sequence content and conversations around content they raised. As mentioned earlier, Facebook preferences conversations that have had recent activity through Likes or comments, over those with no activity. This results in these conversations rising in the stream and appearing on the walls of members of the Page. As a result of this, the sequencing of the engagement with the content is controlled by the students' engagement with the posts. So for example in Week 2 (Activity 2) students were expected to engage content around

understanding Web 2.0 technologies and their relation to Web 1.0 as depicted in the Learning Activity below (Figure 44).

CMC Topic 1: Activity 2
17 Feb-24 Feb 2012

Topic 1: Activity 2

Mapping Web 2.0 technologies

Learning Objectives

By the end of the learning experience you should be able to:

- Explain CMC and Web 2.0
- Discuss the difference between Web 1.0 and Web2.0
- Explain terminology associated with CMC and Web2.0.
- Create, and critically discuss a framework which shows the extent, components and links which exist between the elements forming Web2.0
- Provide an introductory explanation of how CMC/ Web2.0 can be applied to enhance business, education and entertainment.

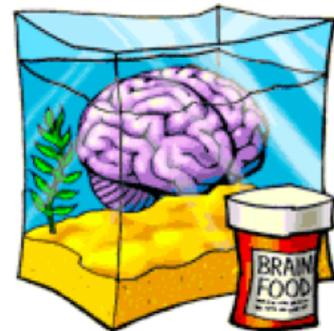


Figure 44: Learning Activity 2

However an analysis of the posts during this period (17/2-24/2) reveals posts both related to this activity and the previous activity (Activity 1). For example the previous week required students to post Web 2.0 representations of themselves. Even though the new activity had been issued, in this post a student creates a Web 2.0 representation of another student, which was not required, resulting in further conversation during this week on the previous activity.



Fab Space

<http://youtu.be/sAbpjO81mj8>

Car-See-Far Ahmed

www.youtube.com

This is the lovely Kaahsifah Ahmed in Web 2.0 speak..



42 People Reached · 1 Person Talking About This

Like · Comment · Share · 17 February at 22:45 ·

Fab Space likes this.



Kaahsifa Ahmed LOL Kunene Im glad u spelt my name incorrectly. Now nobody can find me when they search :P haha

17 February at 22:52 · Like



Fab Space lol Kas,this is so cool. Very nice,if it were up to me,you'd get 100% #wink <====@craig #hint #hint -(Siya)

17 February at 23:10 · Like



Kaahsifa Ahmed Aaah Thanks Man! :)

17 February at 23:24 · Like · 1



Fab Space @Siya – nice to see u helping the cause of fellow students :-) ...Craig

18 February at 07:10 · Like · 2



Fab Space Indeed, well done Kaahs!...Kunene

18 February at 09:12 · Like · 2

The third pedagogic variable is pacing. As with the previous variables, the overall pacing of the course can be considered solid in that the dates for various activities were clearly delineated. However as both the creation and consumption of course content was determinable by the students, they were also able to have some control over pacing. For example in this post the student shared some content but chose to deal with the content in more detail at a later stage.



Ebrahim Hassan Adam

Will post my response tomorrow (tired now)...

http://www.itweb.co.za/index.php?option=com_content&view=article&id=51634%3Atimeline-for-brands-comi
www.itweb.co.za

Like · Comment · Share · 16 February at 23:47 ·



Ebrahim Hassan Adam Here's my response... Timeline for brands is an awesome idea. People use Facebook to interact with their favourite celeb or brand. I personally am a member of many pages/groups of service providers that i deal with such as cellular providers, car dealerships, religious scholars as well as IT/Computer service providers. I do have to admit that some brands mean very little whilst others mean more. A timeline will allow me to keep track of brands that I feel strongly about. I can track when specials were on, when the company started, when management changed, when staff joined, etc. A possible hurdle I see here is that some companies rarely update their Facebook spaces. Another cool feature discussed in the article is the verification process. This way I can finally be a fan of the real Rowan Atkinson. As far as subscriptions go, many users will appreciate this. I for one hardly subscribe to anybody's posts... :) – This is my last tech news for this week...

17 February at 15:51 · Like

In addition, the Facebook Page's asynchronous communication mode afforded students a form of temporal space in which to think in. In a discussion around the use of video chatting environments one of the students remarked as follows.



Fab Space if they are video chatting and able to have a face to face conversation the might as well have one.with video everything is more impromptu.think on your feet..knowing that girl is looking directly in the eyes...and all you can say is hi..with text its more rehearsed.people have a chance on what to think about before they text it..text provides the real time connection of a face to face convo with the distance one needs to think properly like in an email.#justsaying

20 February at 12:34 · Like

Here the student expresses the need to be able to have a temporal space in a conversation in order to provide “the distance one needs to think properly”.

So for all three variables, selection, sequence, and pacing, the environment afforded an opening of the pedagogic space. The ability of students to impact these variables is key to connectivist principles. The adopted definition for connectivist learning sees learning as taking place between autonomous, self-organising agents. This is demonstrated by the students’ ability to be able to determine content discussed, sequencing of content engagement, and pacing.

In addition to opening of the space through selection, sequence and pacing, another aspect of the express-able affordance of communication is opening *how* the students express themselves. The analysis of commonly used terms shown above also reveals the prevalence of terms such as “guys” and “fun”. These terms speak to both the underlying colloquial nature of engagements and the social aspect of the space.



Fab Space let's make this one our profile pic guys, it's rockers.

18 February at 11:45 · Like



Fab Space yeah i hv good taste > hardcore #wink

18 February at 22:43 · Like

The “fun” or playfulness aspect of posts is supported by a general trend in the use of positive words as exhibited in the sentiment analysis depicted below in Figure 45. While this analysis simply counts the use of positive and negative words, irrespective of context, it gives a useful indicator of the prevalence of positive words and emoticons.

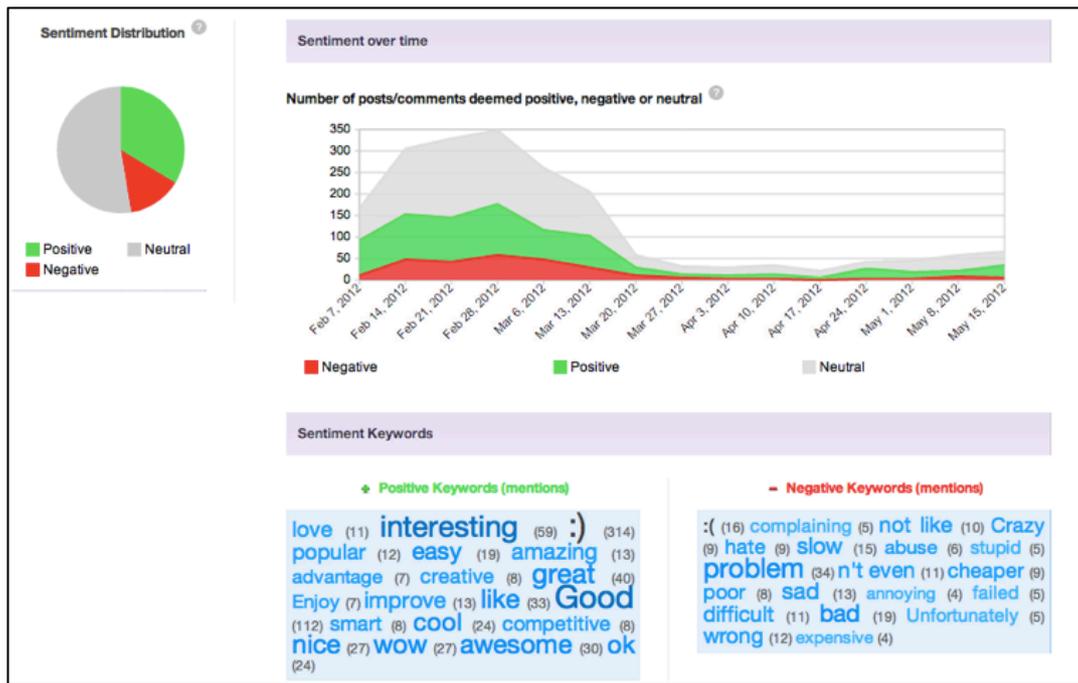


Figure 45: Fabspace Sentiment Analysis (from skyttle.com)

The most common way of attaching emotions to posts was through emoticons. An analysis of the posts revealed that 855 posts (34%) included some form of emoticon such as :), :(, ;), :X, LOL, OMG, etc.



Fab Space We are currently living in the era of no filing cabinets due to computers, databases etc etc Looks like the new era will have less physical libraries and have more e-libraries :|

Sounds good yes? Lotsa pros!!
Like TRESS WILL BE SAVED!!!! :D More oxygen for us 8-) Yeah!
But eish! If youre one who cant read from a screen for too long.... :(

Students also invoked the commonly used #tag convention to supplement their text posts. These included the use of #tags to tag a post with an emotive or explanatory signal such as in the three examples below.



Kaahsifa Ahmed Follow the link. Don't paste it as a comment lol #justSaying

5 April at 08:47 · Like



Fab Space lol Kas, this is so cool. Very nice, if it were up to me, you'd get 100% #wink <=====@craig #hint #hint -(Siya)

17 February at 23:10 · Like



Thabo Manqele Im not done #hides

17 February at 17:05 · Like

In addition to using emoticons and other online conventions, there were a few examples of students also choosing to express themselves in their native languages. So while English was the medium of instruction it appears that the freedom to invoke online “languages” suggested the freedom to also use native languages in some of the discussions.



Sabelo Zwane Ya will'b waiting for you uphathe okumnandi lapho

11 May at 23:20 · Like

Facebook also afforded students the opportunity to express their views through links, images, videos, etc. This enabled the students to easily include content from other sources into the Facebook eco-system, consistent with the content singularity affordance of expose-able. 17% (432) of the posts/comments included a link to another site such as the one below.



Fab Space I just read the similar article on Fox news, we not safe from these applications, it futher says that other apps can even catch ur calls while some eg. (You tube) remotely accessing and operating users' smartphone cameras to take photographs or videos at any time.

Read more: <http://www.foxnews.com/scitech/2012/02/26/facebook-spies-on-phone-users-text-messages-report-says/#ixzz1nX3ZlrUY>



Facebook spies on phone users' text messages, report says
www.foxnews.com

Internet giant Facebook is accessing smartphone users' personal text messages, an investigation revealed Sunday.

Lastly, students could also make use of other media, in addition to text, to express themselves. The interface invites the student to either share a “Post” or a “Photo/Video”. An analysis of Fabspace posts shows that 4% (90) of the Posts/Comments included images and 1% (36) included videos. The ease with which students can include external content (links), videos, and images, encouraged students to include this content into the Facebook learning environment.

Students were unrestricted in how they engaged with the learning environment and so sharing took multiple forms. Lack of structural impositions and familiarity resulted in the students using the environment to share content, questions, opinions, images, videos, links and more in a variety of ways.

As with the expose-able affordance, the express-able affordance sits in a network of attractions and resistances. On the one side it attracts affordances such as conceal-able, confirm-able while on the other side resisting affordances such as conduct-able (as discussed later).

The communication affordance enabled the students to open out spaces and means of connecting. This is supported by the expose-able affordance that causes content to flow between multiple connected Facebook spaces, and the express-able affordance that presents a multiplicity of ways of expressing content

5.7 Control

The previous two affordances, connection and communication were mainly concerned with word-based affordance activities. The next two (control and construction) focus on activities that involve works (actions).

The control affordance is an affordance that relates to opportunities to control activities in the learning space by modifying the environment or controlling what people do. Habermas (1987) pointed out the interplay between learning and power, where the learning and power

discourses are interlinked. The control affordance relates partially to the power discourse through the assemblage of the conform-able and conduct-able affordances as depicted in Figure 46 below.

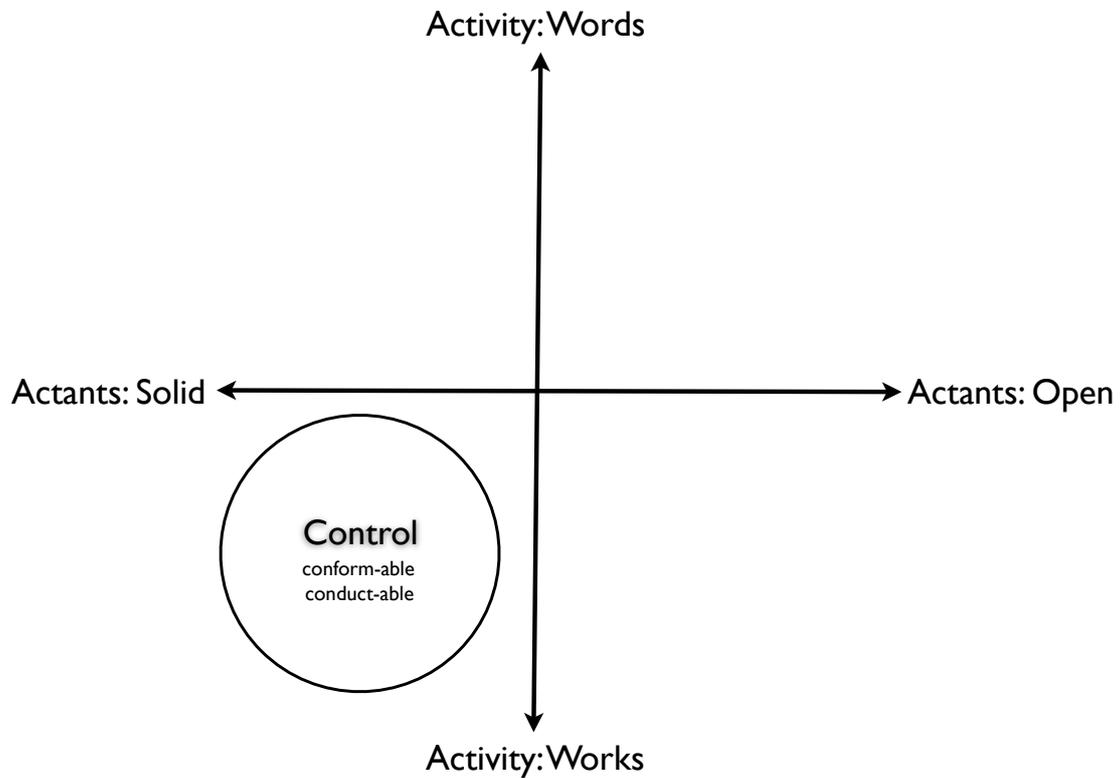


Figure 46: Control Affordance

The conform-able affordances are the action opportunities that exist to get users to agree to a course of action. The conduct-able affordances are the action opportunities to act on both the users and the Facebook space. These two affordances sit in relation to one another where conduct-able is “me doing what I want” and conform-able is “me convincing you to do what I want”. The interplay between these affordances shows how the Control affordance sits in relationship both to itself and with other attracting and resisting affordances. The relation between the conform-able and conduct-able affordance is so intertwined that both of them will be presented together in the discussion below.

5.7.1 Conform-able and Conduct-able

The Facebook Page, as already discussed, was setup to provide a democratised learning environment whereby all users were equal. Any user of the space could make any changes to the space they deemed necessary but this would also impact the experiences of their fellow users. This sets the predilections of one person's conduct-able affordance at tension with another's, unless the conform-able affordance is successful enacted.

For the purpose of this course all students were given full administrator rights effectively enabling them to perform any activities on the design, content or members of the Page. While in a power sense⁹, the students were empowered to do anything to the learning space, thereby indicating an opening of the power dimension (from lecturer to students), an individual's enactment of the conduct-able affordance enabled them to do what they wanted regardless of what others wanted, thereby solidifying their choices.

The following example depicts Kaahsifa jokingly brandishing her admin rights as a threat to a fellow student.



In addition to the joke, this comment indicates the intra-affordance tension that exists within the conduct-able affordance. The student that Kaahsifa is referring to has equal rights to delete her submissions and even her membership of the Page. And so the conduct-able affordance exists at tension with itself amongst the various members.

An interesting effect of this intra-affordance tension is that the students were cautious with acting on this affordance. The result was that students acted on the conform-able affordance

⁹ Latour (2005) resists the concept of power being some innate strength, and argues that “actants do not draw their power from some pristine inner hearth, but only through assembling allies” (Harman, 2009, p. 20)

to try and negotiate agreement before acting on the conduct-able affordance as illustrated with the profile picture decisions (discussed below).

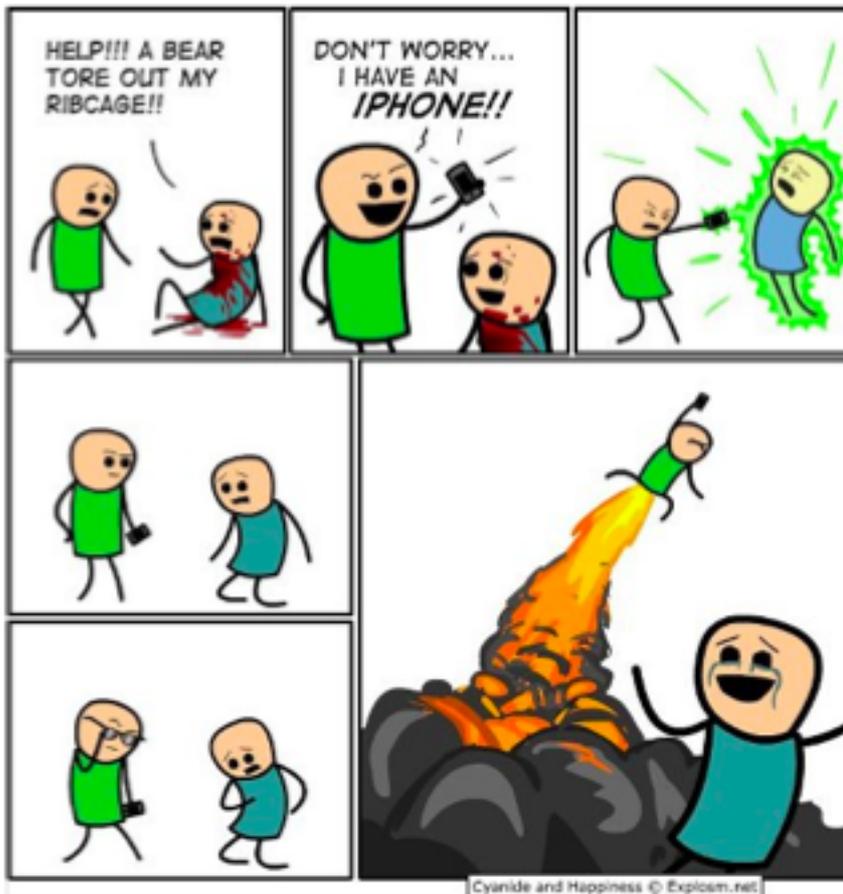
The examples that follow illustrate how the conform-able affordance is enacted at three levels. The first is negotiated conformance, the second is impressed conformance and the third is imposed conformance, *i.e.* the conduct-able affordance.

Negotiated conformance is the use of discussion-based voting, Likes and Polls to try and get agreement. Impressed conformance is conformance that is impressed by virtue of a particular means of operation being the “way it is done” in the environment. These two intertwine with the conduct-able affordance that is essentially the unilateral enactment of the admin power privilege with or without support. This is illustrated in the profile picture issue.

The profile picture is the small image that appears alongside each post made by Fabspace. When the Page was setup there was no profile picture as depicted below.



However anyone with admin rights could set the profile picture for the Page and cause the selected picture to appear alongside every Fabspace post. However rather than simply assigning the profile picture, acting on the conduct-able affordance, the students attempted to get support for suggested pictures, acting on the conform-able affordance, as in the following example.



44 People Reached · 2 People Talking About This
 Like · Comment · Share · 17 February at 07:49 ·

Riyaadh Seedat and Ebrahim Hassan Adam like this.



Fab Space Votes for this as profile pic...???
 17 February at 09:40 · Like



Ebrahim Hassan Adam In favour :P
 17 February at 15:42 · Like



Kaahsifa Ahmed No one is saying anything!!! Should i put it up anyways??? I AM ADMIN after all 8-) lol
 17 February at 18:12 · Like

In this example Kaahsifa has suggested a potential profile picture and someone then invokes the concept of voting by saying “Votes for this as a profile pic...???”. This causes Ebrahim to “vote” through his comment “In favour :P” as well as two other students who use the Like button to indicate agreement (also discussed under confirm-able affordance). The

environment affords students mechanisms to try and reach a negotiated conformed view through open text discussion and the Like button.

However while there were two text-based indications of agreement and two Like indications, this was not deemed enough to consider this sufficient agreement, and so no action was taken on the recommendation, and the image was not set as the profile picture. However the tension this conform-able affordance sits with, in relation to the conduct-able affordance, is illustrated in the final comment by Kaahsifa. Here she points out the tension by saying “No one is saying anything!!!” – not enough conformity to the idea so “Should I put it up anyways???? I AM ADMIN after all 8-) lol” – I can act on the conduct-able affordance should I wish.

Kaahsifa commented on this relation between the conduct-able and conform-able affordances in the Focus Group discussion as illustrated below.

“**Kaahsifa**: u know i was thinking can i change the profile pic?? then i was like but what if the others dont like it then i just left it lol.” (P3:169).

Shortly afterwards another profile picture was suggested and once more negotiated conformance was sought through “voting” by typing agreement.



43 People Reached · 2 People Talking About This
Like · Comment · Share · 17 February at 21:12 ·

Ebrahim Hassan Adam and Fab Space like this.



Ebrahim Hassan Adam who is "FaB Space" who voted?
17 February at 22:26 · Like



Fab Space Ebrahim you have to vote
17 February at 22:31 · Like



Ebrahim Hassan Adam I did like it... :)
17 February at 22:31 · Like · 1



Fab Space let's make this one our profile pic guys, it's rockers.
18 February at 11:45 · Like



Fab Space yeah i hv good taste > hardcore #wink
18 February at 22:43 · Like

While acting upon the conduct-able affordance works in conjunction with the conform-able affordance the level of required conformance appears to fluctuate between students. So while in the previous example the image was not made into the profile picture, in this example someone did go ahead and set this as the profile picture for the site as depicted below.



FaB Space

Tech News - Week 20 Feb 2012 - Texting girl trips during live TV broadcast. This is just not cool. People are too engrossed in their phones. It must've been pretty embarrassing for her. People are becoming so oblivious to their surroundings. This could have had devastating consequences and resulted in serious injuries, thankfully it didn't seem like it.... Avrishka

Another example that brings the conduct-able, conform-able and expose-able affordances into relationship is indicated by the proposed move to unpublish the Fabspace Page.

As discussed under the expose-able affordance of communication, posts to the Fabspace Page appear on all the members' walls thus exposing the content to others outside of the course. All Facebook Pages by default are open to the public, unlike a Facebook Group that can be set to private. However there is an option to Unpublish a Page; the Page will continue to exist but only those with Administrator rights (which was all the students and staff on the course) would be able to see the Page content. The result of this would be that posts would not appear in the home stream of a users' page.

Using another feature of Facebook, Polls, a student attempted to get a negotiated conformance around the issue of unpublishing the Page. So rather than simply getting verbal comment, Facebook provides a more verifiable means of getting agreement, through the use of a poll as depicted below.



Fab Space asked: Can we please make the page private/unpublished? All posts we make will fill the newsfeeds of our fr...

Yes

No

80 People Reached · 9 People Talking About This

Ask friends · 6 · 5 · 13 February at 19:55 ·

However the poll only attracted 4 “yes votes” and 2 “no votes”, far short of the number of students (39) operating in this space. The student then made various attempts to encourage people to vote on this poll.



Ebrahim Hassan Adam

Can we please have more votes on the poll regarding unpublishing of the page...

Like · Comment · 19 February at 23:06 ·

Fab Space likes this.

The main reason Ebrahim cited for unpublishing the page was that posts from Fabspace were “cluttering up...” his home page wall and exposing their work to others, which is the essence of the expose-able affordance.

As discussed under the expose-able affordance, Ebrahim made the following tongue-in-cheek remark to the outside poster (Mitha) as a justification for unpublishing the page.



Ebrahim Hassan Adam lol mitha, i was saying so to tehseena, see! this is why the page should be unpublished :P

11 March at 23:13 · Like

However despite the student’s enactment of the conform-able affordance through polls, there appeared to be no move towards agreement. The student then decided to enact the conduct-able affordance and consequentially unpublished the Page, effectively closing it off from all outsiders. In a final attempt at getting retrospective conformance Ebrahim posted the comment below.



Ebrahim Hassan Adam posted on FaB Space's Wall

"Page has been unpublished... everyone is admin so it won't affect anyone... :)"

However this unilateral enactment of the conduct-able affordance resulted in some form of negative feedback (which was not included in the Facebook posts or deleted from the Page).

Soon afterwards Ebrahim republished the page and also deleted the above comment. The lack of support (conform-able) and the tension with the expose-able affordance and the conduct-able affordance caused a restriction on how the affordance was acted upon.

The ability to unpublish the Page was acted on again later in the module when someone unpublished the Page, this time with no consultation, causing issues with accessing an attached Forum application. Once again they hastily re-published it when they realised it was impacting the extend-able affordance (discussed below). The following thread details this discussion.



Ravi Ogutu

guys I can't access the forum. hs sm1 unpublished it?

Like · Comment · 26 March at 13:37 ·



Ebrahim Hassan Adam try now

26 March at 14:59 · Like



Craig Blewett Seems OK to me...might have been having a siesta ;-)

27 March at 10:01 · Like



Ebrahim Hassan Adam someone unpublished the page (NOT me) so the forum was inaccessible

27 March at 10:21 · Like



Fab Space What the whole FabSpace?

27 March at 10:23 · Like



Fab Space ...Craig

27 March at 10:23 · Like



Ebrahim Hassan Adam yep... for forums to work, the page needs to be published

27 March at 10:24 · Like



Fab Space Aah...well at least they put us back again :-)

27 March at 10:26 · Like

Interestingly in this conversation Ebrahim, who unpublished the Page the first time, quickly distances himself from this action.

The enactment of the conduct-able affordance and its impact on others is possibly most strikingly illustrated by the timeline issue. During the course Facebook released a completely new look-and-feel for Facebook, both for Pages and personal profiles. However the timeline was optional up until 31 March 2012. As with the choice of profile pictures and unpublishing the Page, the decision to adopt the timeline precipitated various discussions around the issue. Rather than using a Poll the students sought conformance through debate and discussion as is depicted in the post below. The suggestion to adopt the timeline resulted in one of the most active conversations on FabSpace, with 32 comments being made around the topic of the timeline.



Ebrahim Hassan Adam

Hi everyone. There's 2 ways i see it, we either adopt timeline now or we will be forced to... I suggest adoption now so we can spend a few days getting used to. Activity 4 will be out at the end of the week and we can spend the next few days getting acquaintd with the new system...
Comments?

Like · Comment · 29 February at 18:17 ·

Mesuli Cyril Bonga Zuma and Thabo Manqele like this.



Fab Space NO!!!!!!!!!! I suggest we start an anti timeline protest, I don't like the feature PERIOD....(Samu)

29 February at 20:25 · Like · 1

There was support by some for adopting the timeline immediately while others argued for only adopting it when it was forced on the Page. While any single person could have caused the timeline to be adopted early it appeared that some form of agreement was being sought through the debate. However despite the polarity of views, someone acted upon the conduct-able affordance and adopted the timeline for FabSpace a day later (1 March). However, unlike the unpublishing of the Page issue, adopting the timeline was irreversible.

This immediately resulted in posts, such as the following, that questioned this unilateral determination of the look-and-feel of the Page.



Tehseena Meer plz use for announcements,why couldn't we wait till the page was published by facebook on 31/3, that way whoever wanted to use timeline could and who never wanted wasn't forced to. We should've had a vote

2 March at 13:30 · Like · 1

In addition to unhappiness with this unilateral enactment, the students also expressed dissatisfaction with Facebook as an organisation limiting their choices by forcing them to adopt the timeline. By Facebook acting upon its own conduct-able affordance they came into conflict with the conduct-able affordance of the users of the site, once more illustrating the intra-conduct-able affordance tension that exists.



Kaahsifa Ahmed Its like Zuckerberg is tired of all of us and wants to chase us away. Lets try Google+ out!! DOWN WITH FB....DOWN!!!!

29 February at 21:21 · Like



Fab Space They seems to be forcing us to use thi timeline now,i've noticed that we cant do some things without activating it now

29 February at 21:23 · Like



Fab Space -----Bhekani

29 February at 21:23 · Like · 1



Kaahsifa Ahmed what cant u do??? yeah he shouldv gave us the option to choose like gmail did. they have a new look but i dont know what it looks like, i stuck to the old one. it gave me the option.

29 February at 21:25 · Like · 1

While the previous examples indicate some level of discussion prior to someone enacting the conduct-able affordance, the next example illustrates how a student, without any attempt at conformance through a Poll or discussion, decided to change the cover photo of the Page. The cover photo, unlike the profile photo, is a large banner style photo that appears at the top of the page. According to Facebook this “a unique image that represents who you are or what you care about” (Facebook, 2013a). As such the image is a proxy for the members and message of the Page.

In this example someone operating as 'Fab Space', hence anonymously, uploaded a cover photo of the Westville campus students. However the students on the CMC course were a combination of students from both Westville campus and Pietermaritzburg campus, hence this photo was not a reflection of the actual class.



Fab Space updated their cover photo.



Like · Comment · 1 March at 10:02 ·

This unilateral enactment of the conduct-able affordance, to upload the image without agreement, immediately resulted in a push back as indicated in the discussion below.



Thabo Manqele

Im sorry but I think putting a picture that includes only Westville students which also includes some who are not part of CMC is unfair for our PMB Friends.

Like · Comment · 1 March at 10:21 ·

Kaahsifa Ahmed and **Siyabonga Duma** like this.



Thabo Manqele I meant putting the pic as this pages Banner.
1 March at 10:23 · Like



Kaahsifa Ahmed who did this thabo??? who put the timeline!!!! lol! i hate u ppl aaahhh
1 March at 10:41 · Like · 1

Once more, as with the unpublishing issue, the conduct-able affordance, lacking a negotiated conformance, caused a reversal of the action and what might be termed impressed

conformance. The person responsible felt the socially imposed need to conform regardless of their entitlement to act on the conduct-able affordance. Within minutes of these comments appearing, the cover photo was changed to something else that appeared to be more acceptable.

Another example of the impact of impressed conformance is the debate around the use of informal language style and conventions in the space. As discussed earlier the express-able affordance opens up the ways a student can express themselves through a variety of means such as emoticons, IM language conventions, etc. During the Virtual Focus Group discussion a student suggested that this form of expression was not appropriate to a learning space;

“and one last thing... since this is learning environment, CAN WE TRY TO USE CORRECT GRAMMAR AND SPELLING PLEASE..” (P2:343)¹⁰

However this request was immediately repelled both by the replies, such as the one below, and the express-able affordance;

“@ NAME m sure we all understand the chat lingo” (P2:348)

So despite the suggestion, a form of impressed conformance was imbued on the space whereby informal IM language was widely used throughout the course.

So while on the one hand the conduct-able affordance imbued the students with control, acting on it preferences one choice over another and hence solidifies the actants action. The conduct-able affordance therefore sits both at tension with itself and the related conform-able affordance offered by Facebook. This Control affordance also resonates with the connectivist definition of learning that requires engagements between autonomous, self-organising agents. The ability to determine not only selection, sequence and pacing (as discussed in the previous section) but also the nature of content posted, membership, and the design of the learning environment (discussed below) reflects this key tenet of Connectivism.

¹⁰ The capitalisation, indicating shouting, was in the original

5.8 Construction

The final set of affordances is related to the actant's ability to construct the space and hence extend and expand actant opportunities (Figure 47).

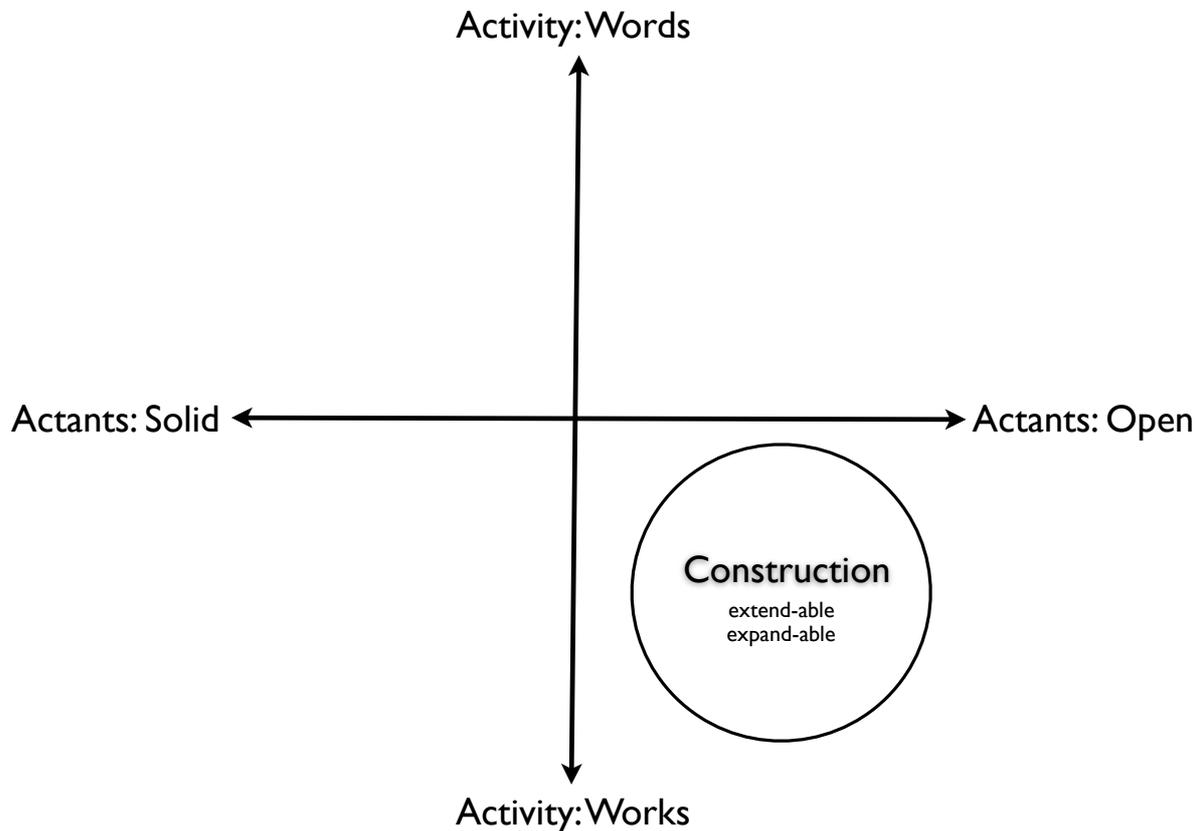


Figure 47: Construction Affordance

The construction affordance speaks to the actant's ability to add to the learning space through apps and other spaces and hence construct their learning environment. Within Facebook the construction affordance is an assemblage of two main affordances, *viz.* the extend-able and expand-able affordances. The physical and metaphorical use of extend is in a single direction or single axis, while expand is along multiple directions or axes. As such extend-able relates to extending the functionality of Facebook just through the use of apps (applications) while expand refers to being able to expand the space into a variety of other self-created spaces within Facebook.

5.8.1 Extend-able

Facebook offers applications, referred to as “apps”, that are “designed to enhance your experience on Facebook with engaging games and useful features” (Facebook, 2013e para. 1). While primarily used on users’ home pages for games, apps can be used to extend the functionality of a Page. The apps that are installed on a Page appear just below the Page’s cover photo as depicted in Figure 48 below.



Figure 48: Apps on Fabspace Page

Six apps were added to the FabSpace Page during the course, as listed below;

- Neat Chat – a synchronous group chat room
- Forum – a forum organized by topic
- HTML editor – enables the creation of custom pages
- PDF – a PDF host and viewer
- Presentation – a PowerPoint host and viewer
- File Sharing – an online file repository

One other app “buddypoke” was recommended as a way to create custom avatars but was not installed on the Page, which is another example of the student not acting on the conduct-able affordance. The reasons for this will be discussed in the next chapter.



Fab Space

<http://apps.facebook.com/buddypoke/?ref=ts>

<http://buddypokefb.appspot.com/?ref=ts>
apps.facebook.com

38 People Reached

Like · Comment · Share · 12 February at 12:19 ·



Fab Space to create your own Avatar

12 February at 12:20 · Like · 1

Of these six apps, I installed the first three, and one student installed the last three. However none of these last three apps were used.



Thabo Manqele

Goodmorning I have added 3 applications I thought will be useful to us

1. PDF –

Share your important Docs/ebooks directly into your Facebook fanpage. No downloads required.

2.Presentation

Share your important presentation/powerpoint files directly into your Facebook fanpage. No downloads required

3.File sharing

You can upload and share any file to your Facebook fans. They can download files right from your Facebook page.

Like · Comment · 29 February at 06:29 ·

Ebrahim Hassan Adam and Kaahsifa Ahmed like this.

The HTML editor app was installed in order to give the students the opportunity to create custom HTML pages. This could have included welcome pages, group pages, useful links, etc. However this app was also never used. The implications of this will be explored in more

detail in the next chapter. The most used apps were the Forum and the chat room app (Neat Chat).

While the details of how these apps were used to support the student learning experience will be unpacked in the next chapter, these apps afforded students the opportunity to construct additional supportive spaces. For example the Facebook Page allows for posts, and the Facebook chat allows for synchronous conversations, while the Neat Chat app allowed for synchronous group conversations. In the example below Brian setup a chat room inside the Neat Chat app where his group could meet to discuss their work.



Fab Space

Group4 members please invite me on facebook, I just created a chat room for us on neat chat. I need to add you on the chat room.----->Brian

36 People Reached · 1 Person Talking About This

Like · Comment · Share · 19 February at 15:31 ·

Use was also made of the Forum app to extend the functionality of the Page. The Facebook Page presents the data in a time-based organisation resulting in posts moving down as they get older or as they become less active. The result of this is that artefacts or a group of links can easily be “lost” in the stream. The implications of this for learning will be explored in detail in the next chapter, however there were examples of students using the forum to organise material. In this example Tehseena constructed a forum to allow the students to post links to their chat rooms, that they all needed to visit for an activity.



Tehseena Meer

I've created a forum for the group chat room links as Kaahsifa Ahmed suggested. Please add on your groups and check that you can view the others

Like · Comment · 22 February at 09:31 ·

However while Facebook affords the opportunity for users to extend its functionality through apps, and thereby potentially uncover additional affordances, there was nonetheless limited use of this extend-able affordance in the course. This seems to indicate that rather than extending Facebook’s native functionality, students chose rather to respond to the affordances immediately enactable within the Facebook ecosystem. The extend-able affordance is resisted

by both familiarity and other affordances such as the expose-able affordance, as activity within these extended app spaces is not automatically curated back into the Facebook feeds.

5.8.2 Expand-able

The second affordance related to the Construction affordance is expand-able. This affordance relates to the ability to expand the learning experience into multiple other spaces within Facebook's ecosystem. As mentioned earlier Facebook provides a number of spaces outside of the user's home page, that can be used to communicate, collaborate and organise. The main three are Pages, Groups and Events. As mentioned earlier Pages are public spaces primarily aimed at organisations giving them a way of communicating with their customers. Groups are closed spaces where smaller groups of people can communicate and collaborate. Events are used to set a date for an event and create a space where people can discuss issues related to this event.

In terms of this learning experience, a Page was used because it allows for the allocation of multiple admins and the extension of the space through apps. However a Group provides a convenient, and more private space for groups to collaborate, and as a result Groups are often used by educational institutions making use of Facebook (de Villiers, 2010). In addition to the main Fabspace Page students set up multiple other spaces within Facebook during the course.

Unlike Pages where members must join the Page by Liking the Page, the Group administrator can add new members to the Group. However, the admin can only add new members who are in his/her friend list¹¹. In the example below Ebrahim invites other students to become his friend so he can add them to the Group.



Ebrahim Hassan Adam

Mahlambi, Sindisiwe Bongekile: please friend me on Facebook so i can add you to the group...

Like · Comment · 21 February at 18:47 ·

¹¹ This is another advantage of a Page, as it does not necessitate the Page members to be a “friend” of the Page creator to join the page.

Several groups made use of Pages to setup spaces for them to engage with their groups on the learning activities as depicted below.



Fab Space

so i have completed setting up our groups fan page please like it and view the material thanks a bunch – nigel

37 People Reached · 1 Person Talking About This

Like · Comment · Share · 26 February at 19:31 ·

Thabo Manqele likes this.



Fab Space btw this is the link again

<http://www.facebook.com/pages/FlickrDigg-fans/284951094903288>



Flickr/Digg fans

Community

Page: 13 like this.

26 February at 19:32 · Like · Remove preview

In the following example Kaahsifa initially decides to make use of an Event for her group activity, but then decides against using the Event in favour of a Group because “the event is being faulty”.



Kaahsifa Ahmed Av im scrapping the event and creating a proper group. The event is being faulty...

17 February at 19:57 · Like

While the Event, like Pages and Groups, affords group-based discussion, it does not afford the same level of controls and functions as the other two.

As mentioned above Facebook presents posts arranged in chronological order, and as a result discussion threads can get lost as they “flow” down the stream. The Extend-able affordance provides apps such as the Forum that can bring organisation to the Facebook space. In the

following comment Kaahsifa sees the use of a Group as also helping fulfil this organisation need, in that discussion related to specific content topics is kept together in one space.

 **Fab Space** Jst saw this post now,and you've invited me. So what's the way forward?
17 February at 20:05 · Like

 **Kaahsifa Ahmed** i'll add u to the group :) BUT FIRST let us see 100% next to our names :P lol wait for the add...
17 February at 20:08 · Like

 **Fab Space** BTW im Siya
17 February at 20:19 · Like

 **Kaahsifa Ahmed** ooh lol! u ppl must state ur name LOL talk in the group siya. dont wanna seperate the discussions. ORGANISATION!!!! lol
17 February at 20:20 · Like

While the expand-able affordance allowed for groups to create other spaces to learn in, it does push against other affordances. For example it is resisted by the conduct-able affordance in that there is less control of being able to get members into the Group as shown below.

 **Kaahsifa Ahmed**
Group3 peeps! Ima be hitting yourl with an invite. Accept OR DIE :)
Like · Comment · 24 February at 16:00 ·

It is also resisted by the expose-able affordance, as posts in private Groups/Pages will not appear back on the main page.

While Groups, Pages and Events illustrate affordances for expanding the learning space within the Facebook environment, there are also opportunities to setup spaces outside of Facebook and post links to these spaces as illustrated below.



Fab Space <https://cmc-group2.wikispaces.com/Wikipedia&Tumblr>



CMC-Group2 – Wikipedia&Tumblr
cmc-group2.wikispaces.com

29 February at 14:33 · Like · Remove preview



Tehseena Meer k, i've found the place but its rather complex to use

29 February at 14:41 · Like

However this expansion, in addition to creating tension with the single feed curation of the expose-able affordance, is also resisted by Facebook users' lack of familiarity with these external spaces as illustrated by Tehseena's remark above "k, I've found the place but its rather complex to use".

The extend-able and expand-able affordances provide action possibilities for users to increase the range of potential affordances of the Facebook environment. However, as with the other affordances these affordances sit in a network of relationships that both attract and resist the other affordances. These affordances also resonate with the "openness" principle of Connectivist learning, and both the inclusion of others into the learning discussion and the ability to navigate multiple networks outside of the immediate course network.

Having presented the various affordances arising from the use of the Facebook Page, the next section will consider in more detail how these affordances sit in a network relation to one another.

5.9 Actant-Activity Affordance Network

The Actant-Activity Affordance model presented above provided a framing for exploring the various affordances in stasis, however what became clear in the discussion was that affordances do not exist in isolation but in a tension of attractions and resistances with other affordances. These affordances, that arise in the domain of the real are a complex, interconnected assemblage (Volkoff & Strong, 2013). As Banfield (2003) said, "it is the job

of social science to establish the relationships between co-determining mechanisms" (p. 60). Critical realism is based on the assumption that actions (perceived experiences) are patterned and the result of underlying mediating structures. However the relationship between these mechanisms is not deemed to be one of constant conjunctions, but rather one of tendencies, where the relationships between the affordances tend towards observable actions by the students.

So while an affordance provides actant action opportunities these action opportunities must be considered in relation to the network of action opportunities presented by the space. As Harman (2009) puts it, "the world is not made of stable, rock-solid forms, but only of front lines in a battle or love story between actants" (p. 23) and "in the end, interpretations are always stabilised by an array of forces" (Latour, 1993, p. 199).

This "battle" or "love" is illustrated in the attractions and resistances between the affordances. As Robinson (2009) says, "the dominant Western worldview is not based on seeing synergies and connections but on making distinctions and seeing differences" (p. 253). The need to see the connections between affordances is key to understanding the enactment of these affordances by students within Facebook.

In a similar way to quantum physics' uncertainty principle, that states that the position and momentum of a particle cannot be known at the same time (Hilgevoord & Uffink, 2012), it is not possible to map the position and momentum of the affordances at the same time. So while the Actant-Activity model provides a useful framing for positioning the affordances it does not depict the momentum caused by inter- and intra-affordance tensions.

The following diagram (Figure 49) attempts to depict the "momentum" or network of relationships that exist between the affordances in the Actant-Activity affordance network.

Affordance	conceal-able	confirm-able	expose-able	express-able	conform-able	conduct-able	extend-able	expand-able
conceal-able	-	-1	-1	1	0	1	-1	0
confirm-able	-1	-	1	-1	1	1	-1	1
expose-able	-1	1	-1	0	-1	-1	0	1
express-able	1	1	0	-	1	-1	1	1
conform-able	1	1	-1	1	-	-1	-1	-1
conduct-able	1	1	-1	-1	-1	-1	0	0
extend-able	-1	-1	-1	0	-1	0	-	1
expand-able	0	1	1	1	-1	0	1	-

KEY

-1: Resistor
1: Attractor
0: Attractor & Resistor

Figure 49: Actant-Activity Affordance Network

Some affordances resist one another (-1), where acting on one affordance is resisted by another affordance, while other affordances attract one another (1), where acting on one affordance encourages acting on the other affordance. For example the confirm-able and conceal-able affordances tend to resist one another. Choosing to post anonymously (conceal-able) caused less Like's (confirm-able) of posts and often resulted in requests for an unmasking of the identity. However the conceal-able affordance attracts the express-able affordance as it provided more opportunities to make comments to both fellow students and the lecturer in an *incognito* manner.

Some of the affordances exist in both a resisting and attracting relationship at the same time, e.g. the expose-able and extend-able affordances. On the one hand the extend-able affordance opens up new opportunities and spaces for the students to be exposed to the “outside”

through the use of apps. However at the same time these external apps do not always integrate into the feed of the Page and hence push against the automated curation that is central to the expose-able affordance.

Interestingly, two of the affordances, expose-able and conduct-able, exist in an intra-affordance tension with themselves. This means that acting on the affordance can be resisted by others also acting on the same affordance. For example a student considering enacting the conduct-able affordance to make a change to the Page weighs this against other students enacting the conduct-able affordance and also making changes to the Page.

What is clear from this network is the complex interplay between affordances, attracting, resisting, and attracting and resisting both one another and themselves. This network of affordances, in a web of competing attractions and resistances, is the set of action opportunities that students in the Facebook space activate as part of their learning experience. Understanding student use of this Facebook environment for learning (which will be considered in the next chapter) needs to be framed by the interconnected nature of the network of affordances, and not simply by individual affordances. This also illustrates that a connectivist-based view of learning which espouses a network perspective, is not only limited to the internal neural networks, and the external technological network, but also includes a network of affordances that also attract and resist, thereby impacting how learning is experienced. As Siemens (2004) argues, the “pipe is more important than the content within the pipe” and it might be added that learning to navigate the network of affordances that constitute the pipe is equally important to learning.

5.10 Comparison to Literature

As discussed in the Literature Review (Chapter 2), there is a growing research interest in the use of SNSs for learning and also a rapidly developing body of knowledge around the use of affordance theory to understand online learning. While there are not many studies that apply affordance theory directly to Facebook, there are some studies that consider the affordances of technology for learning. This section will compare the results arising from this research with previous findings.

Q. Wang, et al. (2012), while taking an affordance perspective of the use of a Facebook Group for learning do not provide much detail of what the affordances are. They suggest that there are three types of affordances, *viz.* pedagogical affordances, social affordances, and technological affordances. They state that the “pedagogical affordances refer to the extent to which the Facebook group could be successfully used as an LMS” (Q. Wang, et al., 2012, p. 433). However they do not provide much detail as to what exactly these pedagogical affordances are. They then continue to describe the social affordances that “refer to the extent to which the Facebook group could provide a safe and friendly environment in which the students could conveniently communicate and interact with one another” (Q. Wang, et al., 2012, p. 433). Lastly they describe the technological affordances as the “extent to which the Facebook group could be used without technical difficulties” (Q. Wang, et al., 2012, p. 434).

This division into pedagogical, social and technological affordances is somewhat difficult to understand. Firstly, the study is exploring technology (Facebook) and how it can be used for teaching and learning (pedagogy). As such it does not seem congruent to have a category called “technological affordances” as all the affordances are arising from the technology. Secondly, separating pedagogical from social is also unclear as they define social as relating to communication, which is key to how teaching and learning (pedagogy) takes place in this environment. As such, this framing of affordances does not provide much, beyond signalling that there are affordances for engaging socially and learning within Facebook.

Robertson (2011) considered the educational affordances of blogs for self-directed learning. As with Q. Wang, et al. (2012), it is not immediately clear what the affordances are even within the “Framework of the educational affordances of blogs” that she develops. However, she does have an illustrative table that lists “blog affordances” as Posting, Reading and Commenting. Unlike Q. Wang et al.’s (2012) high-level affordance, she does provide a clearer, but limited, insight into the actual affordances students act upon. Yet even this level does not truly expose what the contributing affordances are of posting, reading and commenting, as the affordances are mainly situated in the realm of empirical. From the perspective of this research, the conduct-able, expose-able, and express-able affordances

might be considered to be part of Robertson's (2011) Posting, Reading and Commenting affordances.

Deng and Yuen (2011) undertook a similar study to Robertson (2011) in attempting to framework and identify the educational affordances of blogs. They attempt to align the affordances of blogs with learning theories and models. They identify two main groups of affordances, *viz.* self-expression and self-reflection, and social interaction and reflective dialogue. These have elements of Q. Wang et al.'s (2012) pedagogic and social affordance categories, but they do not separate them into these categories indicating that they are all part of the overarching pedagogic affordance. Once more these affordances also tend to sit more in the realm of the empirical and do not give insight into the real mechanisms that interconnect to generate these affordances. Affordances arising from this research such as express-able and expose-able, may be considered to be part of the assemblage Deng and Yuen's (2011) affordances.

Conole and Dyke's (2004b) work on affordances that was later reworked (Conole, 2012) after some debate in the literature (Boyle & Cook, 2004; Conole & Dyke, 2004a), provides the most useful overview of affordances arising from using technology for learning.

They identify the following 8 affordances and 1 category called "negative affordances¹²":

- Collaboration

¹² Conole (2012) and others (Gallagher, 2012; Gee, 2008; K. Y. Lim, 2011) mention what they call "negative affordances" or "disaffordances". However, I suggest that this concept of negative affordances or disaffordances is incongruent with affordance theory. An affordance is an action opportunity, arising from the domain of the Real, and is not intended as a value judgment on the consequence of the action, as observed in the domain of the Empirical. While the affordance may result in a negative or positive outcome, the affordance itself is neither negative nor positive. For example, a knife affords cutting, where cutting is neither negative nor positive. The knife could be used to cut food or to cut another person. However the affordance of cutting is itself neither negative nor positive. Identifying disaffordances is moving beyond what an affordance is, an action opportunity, and entering into value judgments on the results of acting on the affordance. So in Facebook it might be suggested that distraction is a disaffordance of the environment, yet distraction is a an action possibility, and of itself is neither negative or positive. Distracting students from realising they are actually learning when they are learning is positive, while distracting students from the learning task they are undertaking with inputs from their social graph may be considered negative. So, while it is not argued that there are not disadvantages of using Facebook for learning, and these include distractions, information overload, informality, etc. these are of interest in discussions framed around advantages and disadvantages, or features and benefits, rather than affordance theory.

- Reflection
- Interaction
- Dialogue
- Creativity
- Organisation
- Inquiry
- Authenticity

This is not too dissimilar to McLoughlin and Lee’s (2007) list of affordances as compared in the Table 11 below.

(Conole, 2012)	(McLoughlin & Lee, 2007)
Collaboration	Collaborative information discovery and sharing
Reflection	Collaborative information discovery and sharing
Interaction	Collaborative information discovery and sharing
Dialogue	Connectivity and social rapport
Creativity	Content creation
Organisation	Knowledge and information aggregation and content modification
Inquiry	Collaborative information discovery and sharing
Authenticity	

Table 11: Comparison of Conole and McLoughlin & Lee's affordances

Unlike the relatively high-level (empirical) affordances discussed above, Conole (2012) and McLoughlin and Lee’s (2007) affordances are more detailed, although still largely framed around the realm of the empirical than the realm of the real. Comparing these affordances to those identified in this research, it is apparent that there are similarities. For example, collaboration, information discovery, and sharing, which are observed affordances, might be argued to be made up of an assemblage of real affordances such as expose-able, express-able, confirm-able, and conduct-able.

Conole (2012) describes Interaction as being the multimedia tools that give learners, not just access to material, but also the ability to interact. Once more this can be seen to relate to the following assemblage of affordances; conduct-able, which allows the students to act and express-able and expose-able which allows the students to talk about their interaction.

Continuing this process, the following table (Table 12) shows a possible alignment of (real domain) affordances arising from this research with Conole (2012) and McLoughlin and Lee's (2007) (empirical domain) affordances.

This Research	(Conole, 2012)	(McLoughlin & Lee, 2007)
expose-able, express-able, confirm-able, conduct-able	Collaboration	Collaborative information discovery and sharing
express-able, confirm-able, expose-able	Reflection	Collaborative information discovery and sharing
conduct-able, express-able, expose-able	Interaction	Collaborative information discovery and sharing
express-able, expose-able, confirm-able	Dialogue	Connectivity and social rapport
conduct-able, express-able, expose-able	Creativity	Content creation
conduct-able, expose-able, express-able	Organisation	Knowledge and information aggregation and content modification
express-able, expose-able, confirm-able	Inquiry	Collaborative information discovery and sharing
conform-able, conduct-able, express-able, expose-able	Authenticity	

Table 12: Comparison of affordances to literature

What is apparent from this comparison is that while the affordances identified in this research resonate with those of previous studies, what is clear is that each of Conole's (2012) and McLoughlin and Lee's (2007) affordances are in fact an assemblage of affordances. So while Collaboration is an affordance, it is made possible because of an assemblage of contributing affordances that operate in conjunction with one another.

Collaboration is a result of what can be said (Words) and what can be done (Works). As such the assemblage of expose-able, express-able, and confirm-able contribute to what can be said, while conduct-able contributes to what can be done. In fact the Collaboration affordance might conceivably include other contributing affordances such as extend-able or expand-able, should the students decide to extend or expand the spaces in which they collaborate.

While previous research has identified key affordances arising from using technology for learning, largely in the realm of the empirical, this research points to the need to consider the assemblage of affordances that interact, in the realm of the real, to provide these higher level affordances. As discussed in this chapter, these affordances do not operate in isolation but in

a network of attracting and resisting relationships. So while collaboration is an affordance of Facebook, and other technological environments, the interplay between the assemblage of affordances is important as this impacts the manner in which the collaboration takes place. As Volkoff and Strong (2013) say, these real affordances are actualised and “lead to the various effects we observe in the empirical domain” (p. 819).

Therefore, it is not simply sufficient to assume that Facebook, or any other online environment will afford collaboration, without being aware of how the contributing affordances interact within the environment. Additionally, by considering the real mechanisms at work, key affordances that might be overlooked are identified. For example, simply saying collaboration is an affordance might signal the existence of expose-able, express-able, confirm-able, and conduct-able affordances, however on closer inspection it could, and does, include other affordances too. For example in Facebook (and other environments) the conceal-able affordance plays a key role in collaboration, one that is not mentioned by any of the above research. In fact the key role of the confirm-able affordance in collaboration is also not explicitly mentioned, yet it is germane to most collaboration. Yet as discussed in this chapter, the conceal-able and confirm-able affordances resist one another, and as such it is important to understand how these affordances therefore interact in their contribution to collaboration.

So while there are similarities to affordances identified in previous research, this research has shown that by identifying the assemblage of affordances in the realm of the real that constitute higher-level empirical “affordances” a clearer picture of the action opportunities that can be navigated is produced. It becomes apparent that not only are there multiple affordances on offer but that enacting these affordances is itself a process of negotiating a web of interconnected affordances.

5.11 Conclusion

This chapter set out to explore what affordances arise from using a Facebook environment for learning. In order to provide a “unifying concept behind the list” (Oliver, 2005, p. 409) the affordances were discussed using an Actant-Activity Affordance framing. This model

provided a means to plot the positioning of the four level 1 affordances (in stasis) according to Activity (Words or Works) and Actants (Solid or Open).

The next sections then presented the eleven level 2 affordances that assemble to constitute the level 1 affordances. The Accessibility affordance is a pre-condition affordance that refers to the ability to gain access to the learning space through multiple mediums, from multiple places and at any time. The Connection affordance refers to action opportunities that tend towards solidifying connections between actants, either by removing barriers to connecting through the conceal-able affordance, or by strengthening connection through the confirm-able affordance. The Communication affordance relates to action opportunities that allow the actants to expose or express themselves through the expose-able and express-able affordances. The Control affordance relates to opportunities to control activities in the learning space by negotiating conformity through the conform-able affordance or imposing choices through the conduct-able affordance. The fifth affordance is the Construction affordance and this relates to activities that open up the actant space through the construction of additional spaces through the extend-able affordance and the expand-able affordance.

In the theoretical framing of affordances presented in chapter 3, it was argued that the third movement of affordances requires a move towards the relationship created by the interaction of the various actants in the network. In a sense this is like Williams and Edge's (1996) concept of "a 'garden of forking paths' (where) different routes are available, potentially leading to different technological outcomes" (p. 866). The third movement of affordances considers not only the affordances but also the "in between", elevating the role of connection in affordances and the actant-actant relationship. This relationship between affordances causes them to pull and push against one another as the impact of acting on one affordance is resisted or attracted by another.

In order to map this network of tensions and potential movements, the Actant-Activity Affordance Network was presented where every affordance "can be viewed either as a black box or as a multitudinous network" (Harman, 2009, p. 34). This mapping depicted how the various Facebook affordances sit not only in relation to the students acting on them but in a web of attracting and repelling relationships with each other. This web of symbiotic

affordances provides the action opportunities that the students navigate when learning in a Facebook environment.

The affordances arising out of this research were compared with previous research. While there are similarities, the key difference was that by opening the “black boxes” of the higher level, empirical affordances, it was possible to expose the assemblage of lower level real affordances. This, as mentioned above, showed that affordances are not static and clearly partitionable, but rather a complex web of interacting action opportunities.

The network of inter-related Actant-Activity Affordances reflects the underlying connectivist theory of learning. Central to Connectivism, as discussed in Chapter 2, is engagement in order to create connections. These connections take place between human and non-human nodes as is demonstrated in the interaction both between human actants and human and technology actants (Facebook). Also key to Connectivism is the principle of openness in order to generate knowledge through diversity. This too was demonstrated in the opening affordances. Lastly, autonomy and self-organisation are key to connectivist learning and this too was demonstrated in the tensions between various affordances such as conduct-able, expand-able, and extend-able.

The next chapter will now consider how students learn in a Facebook environment by exploring the specific aspects of these affordances the students invoked as part of their online learning experience, and specifically how the tensions between affordances give rise to learning.

6 Learning in Facebook

“Now the class is ‘in my room’ (student Reflective Journal)

6.1 Introduction

The previous chapter looked at the affordances arising from using Facebook as a learning environment. The chapter concluded by identifying a network of relationship tensions between the eight affordances. This chapter will now consider how students learn within Facebook within this affordance network framing.

Chapter 2 defined learning, based on Connectivism as being actionable knowledge that emerges and is assimilated through meaning making connections, between human and non-human nodes of an open network, by autonomous and self-organising agents, that is stored internally within individuals and externally within the network. This definition highlights how learning, unlike in more positivist outcome-based paradigms, is defined by networked engagement by human and non-human actants.

6.2 Opening and Solidifying

Downes (2005) in his discussion of Connectivism refers to what he calls “Connective Knowledge Networks” which would include Web 2.0 environments such as Facebook. He discusses how knowledge, and our conceptions of knowledge are changing with the development of online, networked environments. “Distributed knowledge adds a third major category to this (knowledge) domain, knowledge that could be described as connective. A property of one entity must lead to or become a property of another entity in order for them to be considered connected; the knowledge that results from such connections is connective knowledge” (Downes, 2005, p. 1). As discussed in Chapter 2, in his definition of Connectivism, Downes (2005) defines Connective Knowledge Networks along four dimensions which bear a marked similarity to the four level 1 affordances identified in chapter 5 (Siemens, 2006).

1. **Connectedness** means that “the knowledge produced by a network should be the product of an interaction between members...it is about the conversation that happens between individuals” (Downes, 2007b, p. 9). This is related to the Connection affordance and its contributing affordances conceal-able and confirm-able.
2. **Autonomy** means that “each entity operates independently...according to an individual and internal set of principles and values (Downes, 2007b, p. 8). This is related to the Control affordance and its contributing affordances conform-able and conduct-able.
3. **Diversity** “means involving the widest possible spectrum of points of views...to connect with, and learn from, a wide range of influences” (Downes, 2007b, p. 8). This is related to the Communication affordance and its contributing affordances expose-able and express-able.
4. **Openness** “is what makes interactivity possible...(freeing) users from the confines of mailing lists and discussion boards, environments owned by authorities (academic institutions)” (Downes, 2007b, p. 9). This is related to the Construction affordance and its contributing affordances extend-able and expand-able.

As with the affordance framework presented in Chapter 5, this definition of connective knowledge networks contains two main dimensions - solid (connectedness and autonomy) and open (diversity and openness). The solid-open axis is the main axial tension between the affordances as actants navigate the affordance set. On the one hand there is a set of affordances that seeks to open actant connections and the learning space while on the other hand there is a set of affordances that seeks to solidify actant connections and the learning space.

While the actant-activity affordance model presented expose-able, express-able, extend-able, and expand-able as opening affordances, the discussion highlighted the tensions existent between affordances. This can cause affordances to resist opening by solidifying content, relationships, etc. or alternatively encourage opening by drawing in more comments and content. While the tension between affordances is noted, as is the possible movement of the affordances in the framing, what remains is the overarching tension between opening and

solidifying. The interplay and movement between open and solid is central to learning in a Facebook environment.

The basic unit of the Facebook environment is the post and this is the axial point for opening in learning. However, once a post has been made, the basic unit of reaction is the comment, and this is the axial point for solidifying in learning. The combination of posts and comments (and associated Likes) creates conversation threads that in turn create actant connections, both between people and content. It is these negotiated actant connections that are the basis of learning in Facebook, in line with the connectivist notion of learning.

In order to explore learning through actant connections, the following sections will analyse the impacts of learning within the network of affordances by analysing the interplay between opening and solidifying in learning.

6.3 Opening in Learning

The first part of creating the actant connections is opening. These are activities that cause content to either be created (content created by the student) or curated (content sourced from other sites as indicated by the inclusion of links). Posting this content is an invitation for actant connections to be made that if acted upon will solidify the content and learning activity. This section will explore how students use content posts as a learning action opportunity within the Facebook environment. This will then be extended to explore how content within a Facebook environment is treated differently to content in an offline or artefactual environment and the impact this has on learning.

6.3.1 Posting/Creating

The Facebook environment is built around the core unit of a post and the constant invitation to “Write something...” as depicted in Figure 50 below.

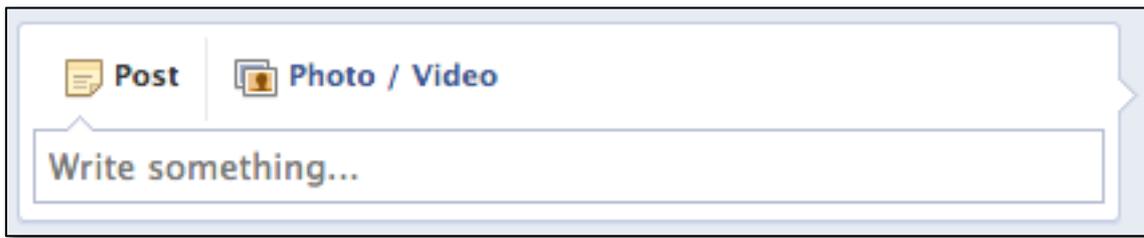


Figure 50: Facebook Page Post Invitation

This is a significant departure from traditional lecture-based environments where typically students are content consumers rather than content creators. While it is possible for a lecturer to create content (using the posting mechanism) the invitation to “write something...” creates an expectation of all users contributing to the content of the space. This invitation is further emphasised in the flattened power structure of the space where posts (as mentioned earlier), coming from the lecturer or student, would appear as if they came from the generic Fabspace.

There are two main methods whereby content is created in response to the post invitation. The first is the creation of content, and the second is the curation of content. Creating content involves the student either writing a text-based post, or alternatively creating his or her own image or video that is shared as a post. The second method, curating content, involves the student sharing a link or post from another source, with or without comment.

The following is an example of a student creating a content post.



Fab Space

I just read an article on CMC titled "Slouching toward the ordinary: current trends in computer-mediated communication", and I am so blown off by the fact that chat softwares were first introduced about 23 yrs ago, and not many of us were aware of their existence until recently due to mxit revolution. I guess we can blame it on mobile phone manufactures, since it took them longer to introduce highly capable devices on the market in a large scale in the 1990s. Anyway it's no wonder because CMC back then was in some respect crude and fragmented.----->Brian

49 People Reached · 4 People Talking About This

Like · Comment · Share · 20 February at 00:23 ·

The following is an example of a student curating content from a link and providing a brief introduction to the content.



Nosipho Makhoba

There is no more privacy in this world...technology is just making sure of that... www.iol.co.za/scitech/technology/internet/twitter-admits-to-harvesting-user-contacts-1.1236652

Once a post is made it appears at the top of the Fabspace Page. However in addition to this the post will (depending on the members' settings) also appear on members' walls as discussed under the expose-able affordance in chapter 5. The process of creating a post therefore acts as an invitation for engagement. The post remains on the Fabspace Page and members' walls as long as new posts have not pushed it out of view. As new posts appear, so the post is pushed down the stream, unless the post is engaged (this will be discussed under solidifying later).

The process of creating and curating a post has a two-fold effect on the student. The first is in terms of cognitive objectives and the second is in terms of content ownership. These two effects are discussed below.

6.3.1.1 Higher Order Thinking Skills

Bloom, Engelhart, Furst, Hill, and Krathwohl (1956) developed a taxonomy of cognitive objectives that range from lower order thinking skills to higher order thinking skills. This was further revised by L. Anderson (2005) as depicted below (Figure 51). The process of creating a post invokes "Creating" skills while the process of curating a post invokes "Evaluating" skills, as discussed below.

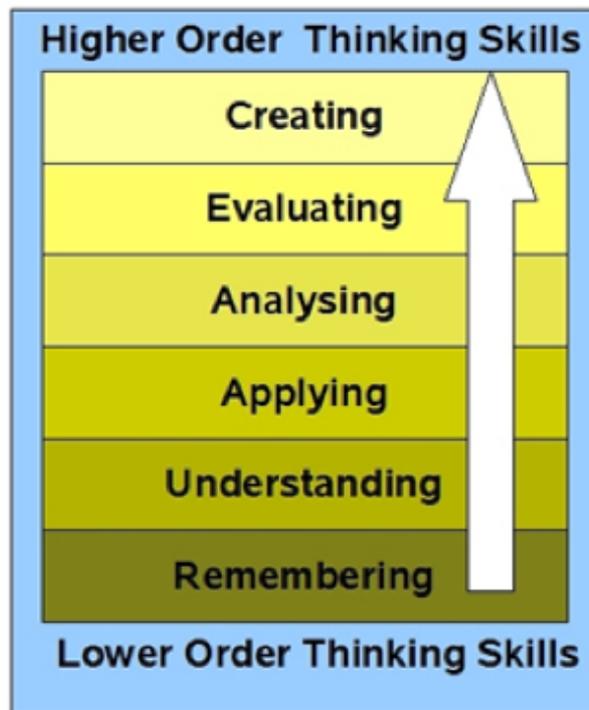


Figure 51: Bloom's Revised Taxonomy (Churches, 2008)

6.3.1.1.1 Higher Order Thinking Skills - Creating a Post

A post that contains content that has been created, whether it be an image, video or text invokes the higher order creating skill. An example of this is when students were required to create a Web 2.0 image representation of themselves (see Figure 52).

Hello Web 2.0 (2 hour)

We are about to explore Web 2.0 and what that means. Activity 2 and beyond will go into more detail, but for this activity you need to get into things and start to get comfortable with the terminology around Web 2.0 and what types of applications exist, their strengths and weaknesses, etc. You need to post something that is a representation of you in Web 2.0 speak. This could be a word tag, a web 2.0 quote, a wiki, a video or whatever...something that uses Web 2.0 concepts to give an indication of who you are. Let's see how creative you can get.

Figure 52: Excerpt from Topic 1 - Activity 1

The following is an example of one of the student submissions.



Fab Space

Tech News Week 3

Title: India's \$35 tablet hits a snag

Just reading this headline is such a shocker for me! I mean there is such a cheap tablet available in India, however sales are dropping, yet in South Africa– prices are starting at roughly R1500. Such a mind-boggling situation. Considering i have read about this a while back– and there was so much hype as these were government–subsidized tablets. However, i'm so curious as to how producers of this tablet were chosen, because with more indepth reading– its evident that sales are dropping because of supply chain inefficiencies. Interesting reading

<http://www.zdnetasia.com/indias-35-tablet-project-hits-snog-62303971.htm?tag=mncol%3Btxt>

Firstly they were drawn to read the content because of its headline (“Just reading this headline is such a shocker for me!”). Secondly they then make a comment on why they were shocked and tie it to their local context (“yet in South Africa...”). Thirdly they link it to previous content they have read (“Considering I have read about this a while back...”). Fourthly they pose a question that arose out of “more in-depth reading”. These factors all point to the “analysing” and “evaluating” that were taking place during the reading process. Finally the process of writing the post invokes the content “creation” as the student attempts to put this thinking down in a succinct manner. This also links to sense making where students attempt to, both in their own commentary, and also in subsequent discussion, make sense of content.

6.3.1.2 Content Ownership

In addition to invoking higher order thinking skills, the process of creating a post also appears to invoke a sense of content ownership and responsibility. In the following example Avrishka posts about an online e-commerce situation (curated content). When asked about the “bandwidth/data cap implications” she attempts to find out the answer to the question. Even although she has not created the original content source, the fact that she has posted on it appears to make her feel responsible to find answers to questions regarding the content she has posted.



Fab Space

Going to the mall...while I'm at home :) Avrishka

Technology News: E-Commerce: Shopping Online, Up Close and Personal
www.technewsworld.com

Shopping has traditionally involved an element of seeing, touching and feeling a product before

42 People Reached · 1 Person Talking About This

Like · Comment · Share · 13 February at 09:56 ·



Fab Space Fantastic! If only one could sleep and wake up in 30 years!

13 February at 10:03 · Like



Fab Space wow! this is greta!!! We should create one for South Africa

13 February at 10:07 · Like



Ebrahim Hassan Adam lol and i thought buying online was as far as it could go. a thing that worries me, what are the bandwidth/data cap implications of such a service?

13 February at 16:18 · Like



Fab Space Can't seem to find the info on bandwidth/ data cap for this hey Eb..... Avrishka

15 February at 12:24 · Like



Ebrahim Hassan Adam there is no info in the article... just a thought i'm sharing to encourage thinking and discussion ;)

15 February at 12:47 · Like



Ebrahim Hassan Adam btw i the comment should read – Tech News – Week 12 Feb 2012 – Shopping Online, Up Close and Personal ;)

15 February at 12:48 · Like



Ebrahim Hassan Adam i think* the comment should read

15 February at 12:48 · Like

This becomes even more important when the student has created the content, rather than simply curated it. As part of Activity 2 the students were required to create their own “map” that represented the “lay of the land” in terms of current Web 2.0 technology companies. This necessitated them understanding who the key role players were and then determining a useful way of organising them in a representation. The following is an example from Group 2. This mapping was then discussed between the groups.

Key to connectivist learning is sense-making and meaning-making (see Chapter 2). As Siemens (2006) argues, learning arises out of the need to make sense of information and in addition be able to see patterns in information and knowledge. This particular student activity required students to navigate an unbounded domain of knowledge relating to Web 2.0 technologies and attempt to make sense of the domain by creating a visual map. In addition to

sense-making the students also needed to decide what could be regarded as valid examples of Web 2.0 technologies and hence they needed to make value judgments on the actual content. The resultant visual image represents this learning, but in addition to this, the pursuant conversations (discussed below) further engaged the students in sense and meaning making experiences.



This discussion resulted in debates as groups “defended” their representations against critiques levelled by their peers, for example.

“**Mpumelelo:** Comeone Kaahs, we give up, now answer us, what is the logic?”

“**@Kaahsifa@:** the logic??? comon kunene! theres three sections....edu, entertain and biz, some apps/sites are used in all or just two so our map shows all of that”

“**Sakhile:** Why isn't facebook grouped with Google plus? Why are they in different catogories”

“@Kaahsifa@: because g+ is recent and ppl do not know abt it or use it as much as fb for eg and in this way businesses would not want to use it as they would get more advertisement of feedback from fb” (Group2-ChatTranscript)

As can be seen from this discussion, Kaahsifa who had created this content, defended the thinking implicit in the image. This need to defend the created content did not end with this exchange. In a later comment (on the 25 Feb, the initial discussion took place on 23 Feb) Kaahsifa uses a post made by Ebrahim on the biggest social networks in South Africa, to reiterate the group’s justification for not classifying Google+ as a social network with Facebook but rather as “entertainment”.



Kaahsifa Ahmed Im not shocked that LinkedIn is more popular than G+. Thats why on our group map, we just put G+ under entertainment coz its not popular enough to be chosen over the hyped sites out there with regards to education and business. To all u ppl that argued our point...IN YOUR FACE :D
25 February at 07:31 · Like

While the post is couched in what might be deemed friendly banter, such as “To all u ppl that argued our point...IN YOUR FACE :D”, the post nonetheless reveals the strong sense of content ownership that is attached to the creation. The discussion continues with Kaahsifa suggesting they would “edit our map” if Google+ became more popular.



Fab Space at kaahsifa...g+ is still new...give time dont be a hater of the g+s and mixts of the world.
25 February at 13:32 · Like



Kaahsifa Ahmed yeah i know, i did say in one of my arguments to this nut shiren that given time g+ will become something and then we'll edit our map :P as for mxit PSSHT that thing is definitely gonna die one day, just wait for it...
25 February at 17:13 · Like

The invitation to Post content therefore has a twofold effect on student learning. The first is that it has the potential to invoke higher order thinking skills such as analysing, evaluating

and creating. In terms of the learning definition, “actant action connections”, this refers to learning taking place between the student actant and the content actant. As the content is created and re-presented a connection is created between the poster and the post. The second impact is content ownership. Whether creating or curating content, students appear to feel a sense of responsibility to the content and subsequent discussion. This represents learning taking place in the discussion space between the students as actants, and will be explored in more detail in Solidifying in Learning.

6.3.2 Asking

In addition to posting content, either created or curated, students often made use of the posts to ask questions. Questions were used in posts for a number of reasons, such as to seed conversations (as depicted below) or to help with understanding as discussed later on. In this example Samukelisiwe posts a link to an article, and then after stating her opinion, “This is so wrong!!!!”, she asks two questions in an attempt to seed the conversation;



Samukelisiwe Dlamini

This is so wrong!!!! Employers now demand my facebook logins?? Aren't they crossing the line?? What about separation of my personal and professional life??

	<p>Facebook: Don't give passwords to employers - CBS News www.cbsnews.com The social networker condemns the practice of companies asking job-seekers to provide access</p>
--	--

Like · Comment · Share · 23 March at 22:20 ·

The posting/commenting structure of Facebook encourages questions but so too does the “stream” nature of Facebook. The fact that posts “flow” down the feed as new posts appear, impacts the longevity of the posts visibility. This was often commented on by students as is reflected in the following comments from students’ Reflective Journals.

“The way facebook does things, post push down others as more and more are posted that also prolong the work speed, and sometimes u tends to be lost.” (RJ-10)

“Also it can be hard keeping up with all the information that we’re all posting, if someone posts a link by the next day it could be swallowed by other links flooding the page” (RJ-12)

Facebook’s “flow” of posts marks a significant departure from both offline learning environments and artefactual-based Web 1.0 online learning environments. The invention of the printing press brought with it the affordance of store-ability. Knowledge, for the first time, could easily be recorded, stored and shared. This caused the learning process to transition from one where growth of understanding arises from the process to one where understanding arises from the artefact. “The emphasis of object over process is strong within today’s educational markets. Most courses and learning experiences are built around content—textbooks, videos, magazines, articles, or other learning objects... The content-central view of learning loses effectiveness in environments that are rapidly changing and adapting. Text in itself is a codification of knowledge at a point in time—a snapshot. In contrast, conversation is fluid and continual” (Siemens, 2006, p. 11).

In Castell’s (1996) book “The rise of the network society” he identifies what he refers to as the “space of flows” which he argues has replaced the traditional “space of places”. He argues that “the network of communication is the fundamental spatial configuration: places do not disappear, but their logic and their meaning become absorbed in the network” (Castells, 1996).

This “space of flows” means that Facebook as a learning environment does not support artefactual approaches, places where content is stationary, but rather an approach based on the flow of conversation and questions. However this did not mean that either the students or myself were immediately comfortable with this non-artefactual approach to learning. In the following example a student makes a suggestion on how to potentially adjust usage of the Facebook Page to support a more artefactual arrangement.

“**Phomolo**: Control to posts(too many of them) and maybe if we can separate them by topics eg News :seperate topics by page or link and so on, links and i think we should not just use it but run it too.” (FG1-P1)

However, the free flow nature of the Post invitation to “Write something...” does not predicate the content with any form of categorisation. As such the environment, in affording a freedom of expression (express-able), resists organisational approaches modelled around artefactual designs. Therefore this student’s suggestion was never acted upon, and the posts continued to flow without conforming to any categorisation. The clustering around the post topic provides the only categorisation, and even then this could move during subsequent conversation.

However some students argued in favour of Facebook’s flow approach over other environments’ artefactual approach. In the following post Valencia argues that Moodle is simply used as a place to “download the lec (lecture) slides” whereas the flow approach of Facebook facilitated learning through “talk” where the students can express their “thoughts and views”.

“**Valencia Amg**: Moodle, firstl, doesn't operate smoothly. Secondly, all we do is download the lec slides...some feel that they don't need to attend lecs if they can just do that. This space allows to talk about the topic instead of listen to theory. We are able to give our thoughts and views”

As a lecturer I too felt that while the conversational design of Facebook would enable students to engage in learning through discussion, there was still a need to store important content. As a result of this I made an attempt to imbue the environment with an artefactual element by installing the Forum application for the page. As has been discussed in Chapter 5, the expand-able affordance of Facebook allows the space to be expanded by adding additional functionality through external applications. These applications are not necessarily designed or even sanctioned by Facebook, but can be used to add additional functionality to the Page. In this case the Forum application provided a means of posting notices and attachments in a way that they could be organised by threads, hence potentially, according to

the artefactual model, making their retrieval easier. Figure 53 below depicts the forum with some of the topics listed. Posts could be clustered around any of these topics and the topic would not move as conversational units do in the Facebook stream.



Figure 53: Forum Organisation

However, activity on the forum did not appear on the main Facebook Page and had to be specifically accessed by navigating through a link to the forum at the top of the Fabspace Page. Thereafter the student would need to navigate through a series of subsequent links to reach the content, much like the design of Moodle as discussed in the Introduction (Chapter 1). As the forum is neither germane to the Facebook environment (being an external application) nor aligned with Facebook's flowing conversational approach both its accessibility and artefactual organisation appear to be "foreign" to Facebook. So while there were a few occasions of students using the forum to store and organise content, on the whole there was little use of the forum. An analysis of the activity on the forum reveals that it only includes 120 posts compared to the 2483 posts made on the main Facebook page.

The following comment from a Reflective Journal reveals a student's frustration with using the forum.

“Forum is terrible!! Not only does it take forever to load but it has blocked content which take forever to load when you try and show them. The fact that there are dozens of clicks before you can get to the content you are looking for puts me off on forums. I think something as simple as a wall post for me works well because no matter when you login during the day you will find it even if lots and lots of people have been commenting on it and another thing is that it loads twice, once when you first open the page and then when you want to continue reading if it is quite lengthy, simple and easy, no frills no fuss.” (RJ-45)

The student raises a key issue with the forum. While it is suitable for arranging content according to the artefactual model, it requires “dozens of clicks” to navigate through the hierarchical arrangement to the content. This is typical of artefactual environments that create nested structures as part of the ordering mechanism. This is interesting in that while both the students and myself appeared to want the artefactual organisation, it was hardly used. So while there appears to be a desire to store and organise, the conversation centric approach that foregrounds content over categorisation was preferred in Facebook. This indicated that attempts to blend LMS paradigmatic approaches within a SNS were generally not welcomed and minimally used.

In addition to the issue of navigating a path to locate the content, the forum does not have the expose-able affordance of the Facebook page. Posts on the Facebook page are immediately pushed to all the members’ pages, whereas Forum posts do not appear outside of the forum itself. This often resulted in the need to remind students to check the Forum for content, as illustrated below.



Craig Blewett

Well done everyone on your interaction in the chat rooms and the Web 2.0 maps produced. This last week has seen you develop a broad knowledge of Web 2.0. Keep you eyes posted on this space (and the forum) as later today I will be posting Activity 3 – and time to get depth in your knowledge.

Like · Comment · 24 February at 14:01 ·

The need to remind students to check the forum was not limited to my reminders but was also made by students to one another as illustrated by the comment below.



Fab Space Hey Nigel, please read the notes posted on the Forum, you are in the same group with Osembe, Kanhai, Marajh and Vela. These names are part of group 4. Please read my suggestions above, and tell me what you think we start with.
18 February at 18:15 · Like

So while students were able to use the forum to assist in organising material they were continually having to remind and encourage fellow students to navigate to the forum to post their content there, as illustrated below.



Fab Space Please post your link on the links page on the forum, if you haven't already...
29 February at 14:34 · Like

Yet even despite this reminder students still chose to post their links as a comment on the post rather than, or in addition to the forum as depicted below.



Kaahsifa Ahmed link for group
3.....https://www.facebook.com/pages/Experts-on-FB-Zoho-CMC-Activity-3-Group-3/197645710336301?sk=app_201143516562748

This is similar to the discussion in Chapter 5 where a student used Fabspace to tell classmates to look at a post in Moodle (for another course). Whether the artefactual-aligned space is outside of Facebook (Moodle) or included as an application within Facebook (Forum), it appears there is a disconnect between the two approaches. Offline learning environments and traditional LMSs tend to precipitate an orientation towards wanting to store and arrange content while using Facebook for learning tends to orientate students towards learning by conversation. In some cases students would reference previous posts in a generic fashion such as is indicated below.



Ebrahim Hassan Adam I recall typing about this somewhere (?) – anyway firstly, Facebook is around since 2004, why come with this argument now?? Yahoo has a track record of doing

No attempt is made to locate the previous post; it is merely referenced as a framing for the current conversation. On some occasions students would remind other students that a particular topic has already been discussed, yet they may not have seen it, or not have engaged with it when it appeared. In the following example a student informs another student that the content that he/she has posted was previously discussed. Yet despite this he continues to engage the conversation once again.



Fab Space

PC training using technologies for education

PC Training :: Enrol Today & Secure Your Free Tablet PC!
www.gopctraining.co.za
 PC Training & Business College, being a hybrid provider, currently operates Higher Education (HET)

37 People Reached · 1 Person Talking About This

Like · Comment · Share · 19 February at 11:59 ·



Ebrahim Hassan Adam We've discussed this in a previous topic... :) I hope to see this technology adopted more widely... lol we had a nice debate about it but widespread adoption is possible in the near future... ;) Govt subsidies, buying in bulk

While the advent of the printing press resulted in an artefactual approach to knowledge storage and learning, the advent of digital media resulted in a proliferation of content beyond what the printed form allowed. Digital content could be reproduced at nearly no cost and almost instantly, resulting in an explosion of content across networks. The new challenge was not content but locating and engaging the correct content.

The Internet, with its world wide connection of sites, created an unstructured network of content that could no longer be organised in neat, sequential categories as previously housed in libraries, bookshelves or structured folders on a computer. Along with the rise of

ubiquitous networked content arose the need to locate the content when it was required. This gave rise to the next movement in learning, the search era. This era was (and is) powered by search technology sites such as Google (www.google.com), Bing (www.bing.com), and Yahoo (www.yahoo.com). These sites index billions of web pages and thereby provide a quick way for a people to search and access content on these pages.

Duffy (2007) refers to the current generation as the “Google-Eyed Generation”, a generation that has moved away from “archetypical vehicles...(lecture notes, printed material...) towards...user-guided experience” (p. 119). Web-based environments, while capable of storing artefactual content, provide access to a far wider range of content through hyperlinks and search.

In the following example a student indicates how search is part of the approach taken to knowledge acquisition. In a discussion about Facebook and how it deals with accounts of people who have died, this student says he will “google it later” in order to find the answer.



Ebrahim Hassan Adam makes one wonder: how does Facebook figure out whether or not someone has died? will google it later lol

17 March at 14:38 · Like · 1

This searching approach to learning was raised as a conversation thread. A student posted an article entitled “Most children prefer to ask GOOGLE if they have a question than their parents”, which led to a range of comments such as the one below from Ebrahim where he says that he uses Google (as illustrated above) in order to “find information”.



Ebrahim Hassan Adam I google first so I don't look stupid lol. Google will never judge me (or will it, in web 3.0?). Print encyclopaedias take up space and it takes ages to find information. I used them growing up. How tedious. Embracing Web 2.0 :) Good sign...

13 March at 00:29 · Like

However the advent of Web 2.0, and especially social media sites such as Facebook, has brought with it another shift in the methods used to access knowledge. While search engines

index the web, providing students an easy way to search for information, the closed nature of social networks does not allow indexing and therefore searching. For example Facebook Pages do not provide a search facility and are not indexed by search engines. This means that content posted to these Pages can quickly flow down the stream and disappear from immediate visibility in addition to being unsearchable. This has resulted in a shift, within sites such as Facebook, from searching to asking. So instead of organising content, which is not supported by a Facebook Page, or searching for content, which is also not supported, students revert to an asking approach.

In the following example a student asks a question about backup. The answer to this could quite easily be discovered through search but the student reverts to asking instead.



Tehseena Meer

What program can I use to automatically backup my documents to Google Docs, etc

Like · Comment · 16 February at 16:46 ·

This learning through asking is not simply pushed by the design “limitations” of Facebook (non-artefactual and non-searchable) but also by the collaborative nature of online social media sites. Asking peers provides access to answers from people who have been verified through previous interactions rather than finding answers out on the web. The role of verification will be explored in more detail in the next chapter.

In the following example a student opts for asking over navigating to the Forum to access the artefactual content. In this case he obviously feels it will be quicker and easier to ask. As is seen from the conversation thread below he gets a response almost immediately, which would be far faster than if he had navigated to the Forum or to other places for this information.



Fab Space

so....whos group im in? :- nigel rapiti

36 People Reached · 1 Person Talking About This

Like · Comment · Share · 18 February at 16:48 ·



Fab Space group 4

18 February at 16:48 · Like



Fab Space holler at a brother

18 February at 16:48 · Like



Ukzn@fb hw do you see that which group are you in

18 February at 16:56 · Like



Fab Space go2 google.docs or dropbox and check the activity 2 pdf..its in there

18 February at 17:36 · Like



Fab Space Hey Nigel,please read the notes posted on the Forum,you are in the same group with Osembe,Kanhai,Marajh and Vela.These names are part of group 4.Please read my suggestions above,and tell me what you think we start with.

18 February at 18:15 · Like

In addition to providing the answer to this student, the implication of asking is that the conversation records this information, which would not have been the case had he simply navigated to the place where the content was stored. The impact of this ask and reply interaction is that it enables others to see the conversation, and as indicated above, to ask a similar question.

The use of asking as a means of getting information also brings with it a “just-in-time” dimension. Knowledge is acquired at the point of consumption rather than when the poster deems it is needed. The following example illustrates just-in-time asking by the students.

One of the issues, as discussed previously under the conceal-able affordance, was the ability to conceal or reveal identity. By default all the students were posting anonymously via the generic Page name, however this could be changed so the poster could post as their Facebook

name. On the 11 February I made a post indicating to the students how they could make this change should they want to.



Fab Space

Hi every1...if you want to change it so that when you post it comes from your name, then click Edit Page then click Your Settings and uncheck "Posting Preferences" - It's up to you - Craig

Like · Comment · Share · 11 February at 17:25 ·

However two days later on the 13 February a student asks another student how to change their posting name.



Fab Space thabo how to change name

13 February at 17:04 · Like



Ebrahim Hassan Adam you have to use the page as "FaB Space" :)

13 February at 17:04 · Like



Fab Space I mean my name to Mesuli from Fab Space

13 February at 17:05 · Like



Fab Space Mesuli Cyril Bonga Zuma

13 February at 17:05 · Like



Thabo Manqele If you are using a mobile device go to Edit Settings and edit the posting settings if you are using a computer there is an option to change under the Admins picture section

13 February at 17:07 · Like

I therefore, assuming that maybe the students did not see my previous comment, re-post the information about how to change the posting name, indicating that this information was made available, by prefixing the post with "As I've said".



Fab Space

Peeps – As I've said, you can choose to post as FaB Space (or change it under Edit Page/Your Settings) – However, if you decide to post as FabSpace and it is for an activity submission (like the Web2.0 representation of yourself) – then you must add your name to the post.

37 People Reached

Like · Comment · Share · 13 February at 12:58 ·

However despite this, which is now the third time the information has been shared (twice by myself and once by a student), on 21 February a student asks how he can change his posting name. Once again, rather than searching for the answer or scrolling through the posts to find the answer, the student simply asks. Once again another student provides the answer.



Fab Space

Ok guys now i wanna change my name from Fab space to my normal name : can anyone help with the process "Phomolo"

39 People Reached · 2 People Talking About This

Like · Comment · Share · 21 February at 20:23 ·



Tehseena Meer Go to Edit page on the top right corner, your settings on the left and untick always post as finspace

21 February at 21:36 · Like

In this example the students do not scroll down to look for the information, or attempt to search for the answer, but simply ask for the information they want when they want the information. The following reflection by a student depicts this asking-based approach.

“What I've found useful is the ability of a student to ask questions to colleagues and get answers. These answers may then be debated amongst the students.” (RJ-74)

Rambe (2012) in his study of Facebook also commented on this asking approach to learning in Facebook, noting that there was a “tendency (for students) to repeat queries and responses” (p. 11). However, while this shift is afforded by social media spaces such as Facebook, the concomitant paradigmatic shift has not necessarily taken place for all the students. Evidence of the desire to contain artefactual content in places has already been discussed. The

following quote reveals a student's concern as to what would happen if Fabspace were hacked by hackers.



Fab Space
Tech News - week 13 (Vela)

security is still a big problem...hey guys can this happen to our facebook page? (Fab Space)

Hackers take aim at Nasdaq, Bats websites

www.france24.com

AFP - Hackers have targeted the public websites of the operators of the Nasdaq and Bats stock exchanges over the past two days with cyberattacks

43 People Reached · 2 People Talking About This

Like · Comment · Share · 15 February at 11:47 ·

This concern is based on an artefactual perspective, one where the content on the site would be lost. However a search or asking mindset would be largely unhindered as the knowledge does not lie in the artefacts on the site but in actant connections between both the people and content sources across the web.

In addition to asking representing a change from storage, and searching knowledge acquisition approaches, to knowledge acquisition through questions, it also has an impact on thinking processes. By posing a question the asker sets his/her and other students on a path of discovery. "The brain goes to find the information based on how the question is phrased" (Price, 2009, p. 30). So when a student posts some content and asks a question (or questions) related to this content, such as in the following example (also discussed earlier), they are demonstrating the issues they have been exploring and signalling the direction for others to think and engage in the conversation.



Samukelisiwe Dlamini

This is so wrong!!!! Employers now demand my facebook logins?? Aren't they crossing the line?? What about separation of my personal and professional life??

Facebook: Don't give passwords to employers - CBS News

www.cbsnews.com

The social networker condemns the practice of companies asking job-seekers to provide access

Like · Comment · Share · 23 March at 22:20 ·

The brain, after hearing the question has to “collect the data and then show everything on the screen in this regard” (Price, 2009, p. 30), thereby encouraging engagement and thinking on the content. The impact of questions on conversation interaction is explored later in this chapter.

Both the affordances of Facebook (express-able, expose-able and conceal-able) as well as the design of Facebook (flowing newsfeed) precipitate a shift from an artefactual storage approach to learning to, in some situations, a search-based approach, but more often to an asking-based approach. This resonates with Connectivism’s network-based perspective of learning. Learning emerges and is assimilated through meaning making connections. However as a result of the necessary “openness” condition of connectivist networks, content is both ubiquitous and unordered resulting in knowledge being stored within the network (Downes, 2009) and meaning-making taking place both as a factor of human actants seeking patterns, and technology facilitated connections. Asking provides a means of navigating this network and creates the just-in-time connections between actants (person-to-person) at the point of consumption.

6.4 Solidifying in Learning

While there is evidence of learning through the opening of actant connections, both person-to-content and person-to-person, through posts, the solidifying of actant connections takes place through interaction (replies and likes) with the post. While posting and asking questions

opens a conversation and opportunities for connections, the reciprocal actions of commenting and liking increases the density of the conversation and solidifies the connections created by the conversation, and adds density to the content unit itself.

As Downes (2007b) says, “Learning...is, in essence, a conversation undertaken between the learner and other members of the community. This conversation, in the web 2.0 era, consists not only of words but of images, video, multimedia and more. This conversation forms a rich tapestry of resources, dynamic and interconnected, created not only by experts but by all members of the community, including learners” (p. 4).

The second, and related part, to how the students learn in the Facebook environment is through responding to posts. In this section the role that commenting plays in student learning, and dialogue will be explored.

6.4.1 Commenting

By its very nature a comment in Facebook is a response to a Post. A Post can be viewed as an invitation to comment, and so while the Post opens up opportunities for content discussion, the comments are the mechanism whereby a conversation gains density. This invitation to comment is germane to the environment and a user is encouraged to comment by being prompted with a “Write a comment...” response box below each post as depicted below.



Fab Space

smartphones are cool but it seems the kid on the block, the tablet, is picking up speed much faster than yours and my smartphone...

http://www.itweb.co.za/index.php?option=com_content&view=article&id=51953
www.itweb.co.za

30 People Reached · 1 Person Talking About This

Like · Comment · Share · 25 February at 14:44 ·



Ebrahim Hassan Adam I do agree with the article... but what about convergence? poster, what do you think about the fact that some people would like to have everything in 1 device? my answer, galaxy note/rumoured 7" ipad :)

27 February at 00:48 · Like



Write a comment...

As mentioned previously the Fabspace transcript consists of 2483 content units made up of 663 Posts and 1820 Comments, indicating that there was an average of approximately 3 comments to each post made.

The more comments attached to a post the more Facebook causes both the conversation thread to appear on the walls of the participants, thereby exposing it to more people, and the more the conversation rises in the stream. The opposite is also true. A post that receives no comments will quickly be pushed down the main Fabspace feed causing it to be lost from sight.

As the replies and Likes increase so the conversation acquires a density that causes the conversation to attract more comments. This further increases the conversation's density and resistance to the flow, and thereby increases its visibility by maintaining its position near the top of the page, and hence its likelihood of even more interaction.

This conversation density operates in a similar way to Newton's law of universal gravitation that states that the force of attraction between two objects "is proportional to the product of

the two masses and inversely proportional to the square of the distance between them” (Wikipedia, 2013b para. 2). This means that the denser (heavier) an object is the more it will attract other objects to it, and the less dense it is the less its attractive force. In the case of conversations in Facebook this is evidenced by the ratio of comments associated with the most active conversations.

An analysis of the top 5% most active conversations reveals that although this includes just 33 posts out of 663 posts, this top 5% accounts for 26% of all comments (465 out 1820 comments) as depicted in Figure 54 below.

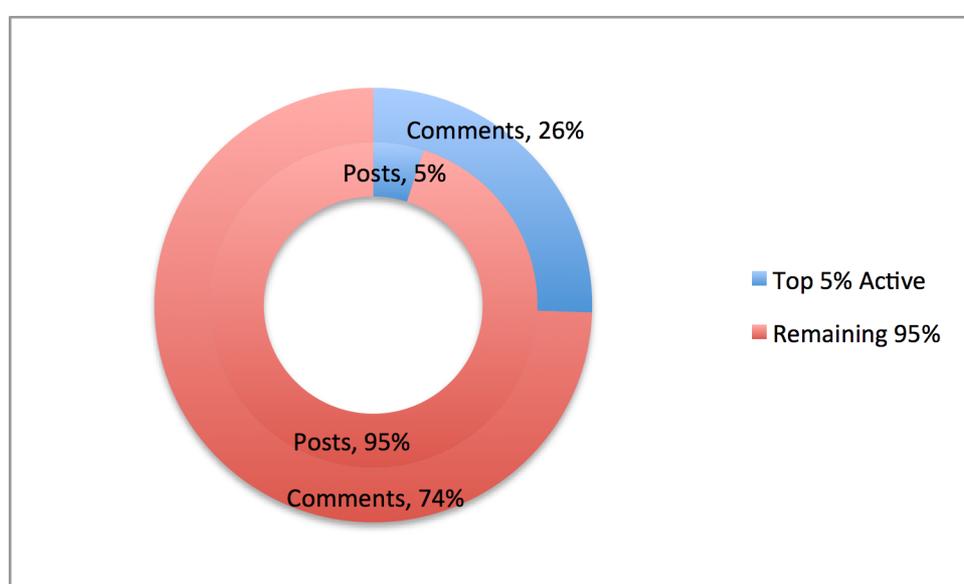


Figure 54: Active Conversation Analysis

Interactions (Comments and Likes) increase the gravity of conversations, drawing in a disproportionate amount of attention to the content unit. Posts that have no interaction quickly get pushed down the stream and are lost without any form of active engagement taking place. Learning increasingly clusters around conversations that are active. The next sections will analyse the constitution of the conversations considering firstly the interplay between dialogic and dialectic in learning, and how authenticity impacts conversation density.

6.4.2 Dialogic and Dialectic of Learning

An analysis of Facebook conversations reveals an interesting interplay of both dialogical and dialectical approaches to learning. The very nature of Facebook's post-comment structure encourages a form of Socratic dialogue. The Socratic method adopts systematic questioning that is intended to, through logical reasoning, help establish answers or truths (Overholser, 1993). For Socrates learning was embedded in dialogue. This later developed into what became known as dialectical and dialogical approaches as expanded by Vygotsky (1978).

Vygotsky's (1978) view of the dialectic was a move away from participatory thinking towards rational thinking, whereas the dialogic perspective argues for a move towards engagement in participatory dialogue. So whereas a dialectic engagement progresses towards rational thoughts, a dialogical engagement resists this rationality pursuit in favour of participatory dialogue and learning from others.

Ravenscroft, Wegerif, and Hartley (2007) argued that the dialectic and dialogic work in conjunction with one another whereby the desire to reason, need not override the desire to understand others and vice versa. "The two will always interplay and vary in emphasis based on what is wanted from a learning situation... (where the) dialectic emphasises the epistemic and cognitive dimensions of learning... (and the) dialogic emphasis the emotional and interpersonal dimensions" (Ravenscroft, et al., 2007, p. 47).

"However, earlier studies have shown that once a dialogic space is established, the dialogues usually become more argumentative and convergent, with the progression of knowledge and reasoning in a dialectical manner" (Ravenscroft, et al., 2007, p. 53). Ravenscroft, Wegerif, and Hartley's (2007) example was done through a tool (Academic Talk) that attempted to artificially control the dialogic and dialectic through reply prefixes such as 'How do you feel about that...'. However the flow of conversation in Facebook is unrestricted. Nonetheless an analysis of the 12 active conversations within Fabspace that included debate, reveals similar results to those discovered in Ravenscroft, Wegerif, and Hartley's (2007) study.

While the dialectic and dialogic interweave there is evidence of the balance of the epistemic objective pursued through reason, and the relational objectives pursued through mutual

understanding. This is achieved by the use of phrases like “devils advocate” or “just teasing” and tags like “#justsaying” as depicted below.



Mpumelelo Sphehile Kunene haha.. but wait, to play devils advocate for a second, they aren't necessarily stealing, if indeed they had these patents in place ages ago. Point is, if it is found that the patent is well documented and everything then it will actually be facebook who stole.. Intellectual property.. even though they probably never even saw it on yahoo in order to steal it, point is, on paper, its stolen...
14 March at 17:47 · Like · 1



Kaahsifa Ahmed lol i agree with u, was just teasing ;)
28 February at 21:21 · Like



Fab Space if they are video chatting and able to have a face to face conversation the might as well have one.with video everything is more impromptu.think on your feet..knowing that girl is looking directly in the eyes...and all you can say is hi..with text its more rehearsed.people have a chance on what to think about before they text it..text provides the real time connection of a face to face convo with the distance one needs to think properly like in an email.#justsaying
20 February at 12:34 · Like

In addition to the use of these, and similar phrases, there is also evidence of the students basing their next move in the debate on common ground. So in the following example, where there is a debate around the merits of using Google to answer questions, Phomolo first states his agreement with Avrishka by stating that “its a good way to learn”. He then continues with where he disagrees by saying “but for those who know what is right and wrong...” He then continues to explain this point further.



Phomolo Motsilili Avrishka man i agree but disagree with you man, its a good way to learn but for those who know whats right and wrong , what can be used and not used. Its good for school work not when it comes to family matters
12 March at 22:47 · Like

Further evidence of using a reasoning approach grounded in commonalities is depicted in the following example. In this debate Siyabonga's post on Web 3.0 causes Ebrahim to disagree with the definition provided, and he suggests that Web 3.0 is defined by Apple's Siri technology rather than simply "connected devices". Shiren however then disagrees and argues that Siri is essentially the same as the definition of Web 3.0 Siyabonga was suggesting. However once more Shiren firstly agrees, establishing a commonality before raising his disagreement - "Siri as web 3.0????naaah...fair enuf u get to communicate with it via voice, but...."



Ebrahim Hassan Adam When I think Web 3.0, I think Siri (though it is not Web 3.0)... Their definition of Web 3.0 is connected devices... I disagree. Web 2.0 refers to the collaborative nature of the "cloud" as we know it. Hardware doesn't make up Web 2.0. No matter what you use Facebook on, it's still Web 2.0 (even with products such as BMW's ConnectedDrive). Just my opinion :)
9 March at 22:02 · Like



Shiren Rajpaul Siri as web 3.0????naaah...fair enuf u get to communicate with it via voice, but it uses collaboration of other sites to provide u with information u need, dont see a diff there, osunds like 2.0 with voice commands to me

As mentioned previously, one of the biggest issues faced on the course was the introduction of the timeline. While the timeline would impact the way that the Facebook Page and the students' own pages operated, the principle behind the timeline's introduction was also being discussed in terms of the course content. Thabo posts a comment and shares a video of Mark Zuckerberg explaining the rationale of the new timeline. Kaahsifa responds to this by building a counter-argument based on points of agreement.



Kaahsifa Ahmed Thabo my man! You bring up some good points. **Yes** they did have good reasoning behind the timeline decision but shouldn our opinion trump theirs? :-x i mean we're the ones using it lol. **Yes perhaps** if they had privacy settings then that will be awesome. I didnt think of that. Maybe it will come about soon if it hasnt already. You say that fb purpose was for close friends? Well that was then and things evolve! Its now 8 years later! Businesses and organisations are now involved on fb etc so that statement you made doesnt justify much. **Yes it does** tell a story about what friends we have on fb but that is just what fb has evolved to be. Now we use it for more than close friends. Like ive added ppl from pmb for group work and i didnt delete them after the activity ended. Theres no reason to plus it wouldnt hurt to keep them. Ive got friends on my fb that were my close friends then they left campus and began their own lives and now we're not in contact anymore. Should i delete them coz i no longer chat to them? Does it not mean anything that at one stage we were close? Get my drift? Fb has become something different to what it was initially. Sorry i went off topic, just wanted to argue your point there :-x
1 March at 07:47 · Like

In the following example there is no obvious attempt at developing the argument by attempting to understand the other, or a shared common ground, instead Ebrahim suffixes his perspective with a self-admitted bias, “perhaps my iOS bias is talking here”.



Fab Space shared a link.

	<p>The Engadget Interview: BlackBerry PlayBook product manager Michael Clewley www.engadget.com</p> <p>There's no getting around it: it's been a rough couple of years for Research in Motion. This week's</p>
--	--

35 People Reached · 1 Person Talking About This
Like · Comment · Share · 24 February at 15:00 ·



Ebrahim Hassan Adam "and BlackBerry developers tend to make the most money out of any other platforms out there today." – i disagree... perhaps my iOS bias is talking here?
24 February at 23:01 · Like

One of the content topics that attracted a lot of comment and debate (19 comments) centred around chat systems. During this debate on the development of chat systems Ebrahim, rather than simply presenting his counter-argument, both addresses the person he disagrees with (Siyabonga) and prefixes his comments with “if I may pose a counter argument...” This seems to be another way of establishing some form of collegial respect in the discussion.



Ebrahim Hassan Adam Siyabonga, if I may pose a counter argument, if chat systems are popular now, why is IRC nearly dead? I do however understand the BBM metaphor (it's a good one too)... Internet was a novelty back then... So you're saying BBM will die like IRC did? :P
17 February at 23:05 · Like

Engaging in debate through conversations in this Facebook learning environment appear to be based around a combination of dialogical understanding of the other, embedded within the concomitant epistemic dialectical pursuit. So acquiring knowledge through actant connections requires interplay between the dialogical and dialectical in the movements towards shared understanding. Knowledge, and coming to know, does not exist simply within actants alone but in the connections between actants. This interplay of the dialogic and dialectic further emphasises this as students foreground the views of others in their pursuit of understanding. As mentioned in the previous section, making use of the asking mechanism for learning is predicated on there being someone to ask. The asking, debating, discussing, and sharing nature of social media sites foregrounds *actant connections* in the process of acquiring knowledge.

This interplay causes the conversations to quickly solidify as they increase in size, thereby resisting the flow down the news feed. In the following sections the factors that appear to impact conversation density will be explored.

6.4.3 Authentic Content

Learning in Facebook revolves around the interplay between posts and comments, and is often enacted through a combination of dialectical and dialogical exchanges. As already

mentioned, a small amount of posts are responsible for a disproportionate number of comments. This raises the question as to what causes these posts to become so active while other posts have no interaction? What causes this increased density of certain conversations over others?

An analysis of the top 50 most active conversations, and 50 content posts with no activity (comments or likes), reveals no discernible difference in terms of the time of day at which the posts were made. The average posting time for the active posts is 14:17 as compared to 14:15 for the inactive posts.

As can be seen from the chart below (Figure 55) there is a similarity in the posters - 28 and 33 posts made by named posters (Poster-Others) for the active and inactive posts respectively. Likewise a similar, 21 and 17 posts, made by Fabspace (Poster-Fabspace) for the active and inactive posts respectively. This appears to indicate that whether the poster is anonymous, or not, makes no difference to whether the conversation is engaged or not.

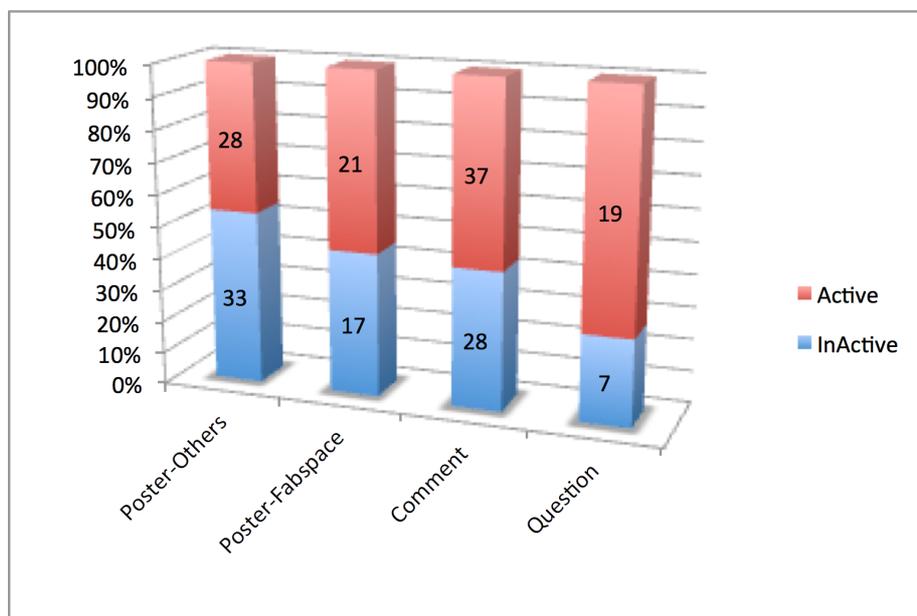


Figure 55: Analysis of Active and InActive Conversations

However it was interesting to note that one student in his reflective journal said the following.

“I really feel completely comfortable to post as fab space but when someone posts as fab space it's really not good and in most cases I don't even feel like commenting to that person's posts, I don't know but there is that missing link when someone posts as fab space. Names are important.” (RJ-41)

Despite this the student commented 12 times on Fabspace posts and 13 times on named posts. So it does not appear that students making use of the conceal-able affordance has an impact on the number of comments attracted to a post. Although as discussed in Chapter 5, it did impact the number of Likes, and hence resists the confirm-able affordance. Furthermore the topics discussed cover a wide range of content topics related to the course material.

However, the main difference appears to be in whether the posts were initiated with a comment and/or question, or not. 37 (74%) of the active conversations were seeded with a comment (in addition to the link) and 19 (38%) included a question. This is in contrast to the inactive posts that only had 28 (56%) with comments (in addition to the link) and 7 (14%) with questions.

The content posts were made on a range of topics by a range of posters, however what appears to make the difference to conversation density is whether the initial post was seeded with some form of introductory comment and/or question, and not simply a shared link. The following is an example of an active post (19 responses and 3 likes) that includes a link that is introduced with a comment and a question.



Ebrahim Hassan Adam

My Last Tech News For this Week

> Biggest social networks in South Africa – <http://goo.gl/rdS8f>

Mxit is still at the top which is no surprise since their service may be accessed with a few cents worth of airtime. Things are looking good for Mxit (they can even give capacity to Stellenbosch for the Wifi hotspot to be implemented)

As far as Facebook goes, I recall a time when Facebook data used to be many MB's and was a factor keeping many mobile users off it. I wonder if that has changed (probably due to the drop in mobile broadband prices and perhaps Facebook making the mobile site eat less data (unsure about this, clarification welcome)... Also, more users over 40? That startled me!

BBM in 3rd place and before Twitter is actually a small shock to me. Nonetheless, many people do have BlackBerries but Twitter is more widely available (on a larger range of devices).

LinkedIn above Google+ (which is still relatively new) is also surprising... I'm new to LinkedIn so I guess my view in this case is shady... lol

> FNB Facebook vouchers launched – <http://goo.gl/gkoRU>

I have previously discussed that, in the opinion of many (including myself), that FNB is a bank here in SA that is innovating at a great speed and leaving other banks behind. I personally do not bank with them (just saying) but find their products to be amazing. The restriction to send to only South African's is a small negative but is probably due to regulations (SARS, Customs, Tax, etc.).

A nifty feature is that the service is linked to the widely used eWallet. Another good thing to see was that there was a South African startup already offering such a service (I had no knowledge that they existed).

As I do with some posts, let me end with a question, will you trust fact that a money-related transaction is linked with Facebook??

PS: Blog will be updated soon and sorry for the long post... ;)

Like · Comment · 24 February at 23:46 ·

In contrast the following is an example of an inactive post that contains a link with no attempt at providing an introductory comment or seed question.



Mpumelelo Sphesihle Kunene

<http://www.linkedin.com/news?actionBar&articleID=5593481874585432077&ids=e3gVdjgUcjsUdzAMczcUd3ARdiMPdj4Pdj8UejsOcj sVdjkoEjkRb3gOd3wSejAMdPcMe38RdzcvDjklDpsMczcQdjwRd3sUcjwQcP ARdiMTdjAVdjCMe3oOdjgNe3oRe3kR&aag=true&freq=weekly&trk=eml-tod2-b-ttl-1&ut=1fY2fmEiMjfBc1>

Apple and Facebook Should Be Terrified Of Google-Tinted Glasses | LinkedIn
www.linkedin.com

Like · Comment · Share · 9 April at 09:16 ·

It appears that the “investment” of the student into the content of the post impacts the gravity of the initial post and thereby impacts the density of the pursuant conversation. There are multiple layers of authenticity (discussed in Chapter 2), such as content authenticity, task authenticity, environment authenticity, assessment authenticity, etc. Examining both the active and inactive posts reveals that the content range includes a similar mix of what would be considered authentic (of interest) topics, such as texting, Apple, Google, Facebook, chatrooms, MXiT etc. As the students were able to post any relevant material on the topic areas, the opportunity for content authenticity was greatly increased as was demonstrated by the types of topics most commonly covered as depicted in the top key terms below (Figure 56).



Figure 56: Top Terms mentioned in Conversations (from skyttle.com)

All of these terms were not only germane to the course but were authentic to the student population. As mentioned in the previous chapter, Conole (2012) in her discussion of affordances identified authenticity as an affordance.

However, in addition to authenticity, a post appears to gain believability when the poster invests energy into unpacking and exploring the content. Simply posting what might be considered topical and therefore authentic content does not appear to be sufficient to initiate conversation. However when the poster unpacks the content (as in the example above) and encourages conversation through questions, the students respond. The learning is in the conversation and this is given inertia by the poster introducing the content with a comment and/or question. This also links to the notion of the pipe being more important than the content (Siemens, 2004). Key to connectivist learning, where knowledge is ubiquitous, is the ability to be able to filter and discern which content to engage with. As such, content that appears to have an intellectual investment demonstrates knowledge stored in the network, and attracts consumption and engagement. This appears to encourage the students to reply and initiates the process of attracting more interest to the thread.

So while various studies on the impact of social networks on learning point to the key affordance of content and environmental authenticity (Conole, 2012; Herrington, et al., 2003; Lombardi, 2007), what appears to be even more important is believability initiated by authentic unpacking and framing of post content.

Learning in a Facebook environment is defined as taking place through actant connections. These connections exist between people and between people and content. It appears that in order for people-to-people connections to gain activity there needs to be an associated investment in the person-to-content connection. In situations where the student appears to have engaged with the content, often traversing the various dimensions of Bloom, et al.'s (1956) taxonomy, the solidifying of the person-content connection causes a reciprocal solidifying of person-person connections.

6.4.4 Conversation Longevity

As has been discussed above, comments and questions that unpack content appear to imbue the content with a believability that encourages comment. This commenting has the impact of increasing the visibility of the content and thereby resisting the flow of the content down the

feed, thereby attracting additional comment and attention to the conversation. This featuring of content based on activity is a function of the Facebook environment, and is an illustration of how learning, in the connectivist sense, also resides in the technology.

However, even the most active posts do not continue for any significant amount of time. An analysis of the average conversation length of the top 50 most active conversations (ranging from 7 comments up to 32 comments) is 21.3 hours. Even when conversations gain density from multiple comments, their average lifespan is typically less than a single day. Table 13 below depicts the life span of the top 10 most active conversations.

Rank	Post Description	Responses	Date & Time Start	Date & Time End	Hours Apart
1	Timeline discussion	32	2/29/12 18:17	3/1/12 8:14	13:56
2	Free online courses	30	5/11/12 21:40	5/12/12 1:19	3:38
3	Most popular Web 2.0 sites	25	3/6/12 14:50	3/8/12 8:31	41:41
4	Setting up chat forums	21	2/21/12 19:56	2/21/12 21:20	1:24
5	Chat forum issues	20	2/22/12 15:58	2/22/12 20:29	4:31
6	Origin of chat systems	19	2/17/12 21:17	2/18/12 14:36	17:18
7	Yahoo	17	3/14/12 18:25	3/15/12 2:37	8:12
8	Online courses	17	5/5/12 8:47	5/6/12 22:24	37:37
9	Group issues	16	2/26/12 10:27	2/26/12 18:28	8:01
10	Question on news	15	3/7/12 7:21	3/8/12 10:51	27:29

Table 13: Conversation lifespan

This relatively short lifespan of a conversation is due primarily to the design of social media environments such as Facebook, Twitter, etc. These environments encourage bursts of conversation over short periods of time around topical issues. If the topics are not engaged, the issues quickly move out of view and are replaced by new ones.

This, as discussed earlier in the chapter, contributes to the change from artefactual arranged learning to a conversational style of learning. Content and learning is consumed immediately and not later. There is no easy way to record or even delay, for any significant period of time, content for later consumption and understanding. This results in students either engaging with the content at the point of consumption, or alternatively attempting to raise the issue later

when it is deemed necessary. This is fundamentally different from learning environments that encourage content storage and delayed learning. The Facebook environment and its conversational approach encourage immediate learning through actant connections.

6.5 Conclusion

This chapter set out to explore how learning takes place in a Facebook environment as precipitated by the affordances. Learning was defined as actionable knowledge that emerges and is assimilated through meaning making connections, between human and non-human nodes of an open network, by autonomous and self-organising agents, that is stored internally within individuals and externally within the network. The analysis of student learning shows that learning is made up of two main aspects in Facebook. The first is an opening of actant connections through student posts, reflecting Downes' (2009) Connective Knowledge Network features of diversity and openness, and the second is the solidifying of actant connections through replies, reflecting Downes' (2009) Connective Knowledge Network features of connectedness and autonomy.

Each of the four main elements of connectivist learning were evident in the student use of Facebook:

- **Learning that emerges and is assimilated through meaning making connections** – Meaning making is being able to select what content to engage with, it is seen as having worth, and then creating meaning out of that content. Meaning making is also about making sense of information, particularly by letting patterns emerge. This is shown in the summaries of content, and the pursuant student engagement in discussions. The learning is assisted by the Facebook environment, which features discussions with more activity and likes.

- **Between human and non-human nodes of an open network**
Learning in Facebook is not only a factor of what happens in the neural networks of the participants, but in the connectivist sense, is represented by the externalisation of the knowledge and the connections in the computer network. Facebook enables this by “weighting” conversations that are active, in a sense raising them, as knowledge

that is deemed valid, over other posts. The second aspect of this is the open network. Downes (2009) argued that this was a vital principle of Connectivism as it was only through open, diverse dialogue, not controlled or closed, that opportunities arose for knowledge to be generated. This was demonstrated by the fact that a Page, rather than a Group was used. The Page caused the posts to appear on the students' profile pages, thus exposing the content to a far wider audience. There were several examples of how external parties got involved in discussions, thereby helping direct conversations and learning. However the negative consequence of openness was also demonstrated where students were concerned about the "noise" created on their own profiles and equally the legitimacy of "external" participants being involved in the course discussion. Also arising out of the open nature of the environment was an increased sense of vulnerability. This meant that posts were not only open to critique by peers but by anyone.

- **By autonomous and self-organising agents**

Another of the key elements of connectivist, or emergent learning environments is that the participants are autonomous and self-organising. While there was an overall agenda in terms of the course structure, students had lots of freedom as to when to explore topics. There was evidence of previous topics being revisited or older posts being drawn on later in the course. In addition Pages (once again unlike Groups) enabled the students to decide where to house content or discussions by installing applications. It was found that while the students had many options for self-organising, most of them chose not to install applications but rather to stay within the Facebook ecosystem, by making use of Facebook Pages, Groups and Events. Mackness, Make, & Williams (2010) refer to Hirst's notion of an "uncourse" where a course does not follow a linear path. They argue that this has a destabilising impact, something that was reflected in the comments of many of the students as they grappled with the density and distribution of conversation. Downes (2007a) argues that learning involves learning to traverse these networks of connections. Mackness, Make, & Williams (2010) suggest that the discomfit experienced by students, both as a result of their autonomy and the openness of online learning environments, is to be expected and is a key part of the meaning making process.

- **That (knowledge) is stored internally within individuals and externally within the network**

Part of the connectivist conception of learning is that learning is the process of network formation that occurs within the individual's neural networks. While it is not easy to determine this, the connections made in terms of understanding the course goals and specifically meaning making of the Web 2.0 space was demonstrated in the various charts, online debates and ultimately in the offline panel discussion. However in addition to this, knowledge is stored in the network, with Facebook automatically featuring conversations based on activity, and students reverting to the network to both store answers and, as explained in the "ask approach", to find knowledge. This is key in an environment, as Siemens (2004) argues, that has an over-abundance of information. Students often complained about the amount of posts, and as such the network and ability to store knowledge in others within the network became key. Siemens (2006) quoting Stokman says that social networks are structures that "influence and foster learning... (and) that mutual interdependencies influence the potential for interaction and connection forming". As Downes (2007a) argues, knowledge is not merely passed between people, nor does it reside in any one person, but rather it is emergent from the interaction of the whole. This is however, both an enabler and a limiter (Mackness, Make, & Williams, 2010) as this results in people working together as knowledge grows, but equally it can create "noise" and what is perceived as too much content, potentially burying knowledge.

Learning in Facebook takes place through dialogue, a dialogue that is enacted through posts, comments and questions. There is a progressive growth in understanding that is tied to meaning making connections and not primarily to output-based artefacts. "When knowledge is communicated through dialogue, the progressive growth of understanding is tied to the process, not the artefact. Learning, when primarily text-based, ascribes knowledge as primary in physical objects" (Siemens, 2006, p. 11). Due to the importance of connection in the learning process the dialogue favours a blend of dialogical and dialectical approaches.

Conversational density is related to the posters investment in the original post. This shows that the curative role that Facebook affords is not merely a scraping of link content from

various sites but requires a demonstrated investment into the content by the poster as exhibited through the framing comment and/or question. This augmentation of the content causes the post itself to gain a density that immediately attracts comments and initiates the process of increasing the activity and concomitant density of the thread.

The interplay between opening and solidifying of actant connections is key to how learning takes place in Facebook. However what needs to be explored is why this is the case. The next chapter will explore why learning within a Facebook environment operates in this manner through a discussion of the interplay between the learning and power discourses.

7 Learning and Power

"Today knowledge has power. It controls access to opportunity and advancement." (Peter Drucker)

7.1 Introduction

The previous analysis chapters considered firstly what the affordances of a Facebook learning environment are and secondly how learning takes place in a Facebook environment. This chapter now attempts to further unpack learning within Facebook by exploring why students learn in Facebook in the way they do. The previous chapters explained how the Facebook environment is a space of tensions, tensions between competing affordances that once enacted open up potential tensions between actants. The strands of action opportunities weave together to create a web of possibilities whereby learning can be enacted. However these tensions resolve into two main threads, a learning discourse and a power discourse that are inextricably intertwined (Habermas, 1987). It is the interplay and tensions, within and between these two discourses that frames the learning environment within Facebook.

The learning discourse is manifested in the tension between vulnerability and validation. The learning discourse is embedded within the power discourse, which also revolves around a tension between enacted and constrained. Exploring these tensions within the strands of action opportunities provides an insight into why students learn in the way they do in this environment.

Learning happens in the testing of knowledge that takes places through the process of actant connections. Each of these connections is a test. The posting of content is an offer of a connection to other actants. If they respond, the content and actant are being tested. Learning happens in the testing, yet the testing requires two key aspects. The first is the testing itself and the second are the conditions to enable the connections, and hence the testing, to take place. The first aspect is the conversation that takes place in the environment, a conversation built upon the tenets of vulnerability and validation. The second aspect is the power discourse that frames the environment both empowering and constraining engagement.

The process of learning itself cannot be separated from the power discourse. Ultimately how learning takes place and why students learn in the way they do is to a large extent impacted by the power discourse within which the learning takes place. The freedom to act and be anonymous encourages students to express themselves through actions and content. Yet they are regulated by this same power. The power that opens also constrains. They are regulated by social responsibility to others; they are regulated by operating within a network that looks for the greater good. As discussed previously, affordances do not operate alone but in relation to one another. These strands of action opportunities pull and push against one another as students navigate the online space for learning.

This chapter will firstly consider the learning discourse and how the competing tensions between vulnerability and validation are enacted by the students. The next section will then consider the power discourse and how control and decision making adjust to take account of the tension between control and responsibility.

7.2 The Learning Discourse

This first section will consider the learning discourse and the interplay between vulnerability and validation in the students' learning experience. Firstly the role of vulnerability will be considered, followed by the reciprocal role of validation and finally how vulnerability and validation are interconnected. Bell (1998) in his consideration of the role of vulnerability in action research concludes by pointing out the following (amongst other) "prizes" of vulnerability: humility, tolerance, listening, and learning. It is these "prizes" that are at work in the student learning experience as discussed below.

7.2.1 Vulnerability in Learning

Both posting and commenting within a Facebook environment invite opportunities for participants to engage in conversation. Without the posts and/or comments the opportunity to engage either dialectically or dialogically does not exist. The wall, the central space of the Facebook experience is centred on conversation threads, where a post seeds each thread. Each post opens out opportunities for conversation, as does each comment on the posts.

However not only does posting and commenting open up opportunities for conversation and debate, as discussed in the previous chapter, it also makes the student vulnerable. This vulnerability is key to why students engage in learning within Facebook in the way they do.

The process of posting content, whether the content is created or curated, imbues the poster with a sense of ownership. Whether the poster has posted the content anonymously or not, the content “comes from” someone, and thereby attaches to them. The Facebook environment would send me a message such as the following when a comment is made on one of *my* posts.

“Riyaadh commented on your post in Fab Space.”

This message makes use of the possessive noun “your” post. The post belongs to the poster and comments, likes, and shares related to the post are deemed to be taking place on “your post”. This ownership of content is further exhibited through the inclusion of activity associated with the post reflecting on the posters own wall. Not only do these features of Facebook increase the likelihood that the original poster will see the activity related to the post, but it also tends to imbue the poster with a sense of responsibility towards the content arising from this ownership.

In an environment such as Facebook, where physical presence is replaced largely by textual presence, the content becomes a proxy for the poster, whereby it represents their thinking in the area of discussion. The following comment by a student in their reflective journal indicates this sense of content ownership.

“I found it very open to engage with other students since they are signed as administrators and we both share anything information we might have.” (RJ-16).

The student suggests that he can share “anything (sic) information we might have” indicating that the content belongs to, or attaches to the student. This content ownership, as with any form of ownership, brings with it an associated vulnerability. While physical ownership makes a person vulnerable to a loss of value or utility of the asset, content ownership makes a person vulnerable to a “loss of face”.

Vulnerability is key to the process of learning, both in offline and online environments. In a typical lecture-based environment students are not typically required to make themselves vulnerable during the lecture. However when the lecturer invites questions this immediately invokes vulnerability. In most of my offline lectures a request for the students to ask questions is met with silence, thereby reducing their vulnerability.

“**Sakhile:** Facebook gives me more confidence to talk than in a brick and mortar class situation” (FG1-W1)

Bekani, puts this down to being “shy to speak in front of” people;

“**Bekani:** Some people are shy to speak in front of the audience, but can easily express their ideas online.” (FG1-W1)

However Valencia suggests this “shyness” is rooted in a vulnerability associated with the fear of saying something that could be construed as “wrong or off topic”.

“**Valencia:** but some students are shy and often think that what they say would be wrong or off topic maybe” (FG1-W2)

The fear of vulnerability in a lecture room results in missed opportunities to engage with the lecturer around content that is not understood. However this is not surprising as both the design of lecture rooms (and hence affordances) and even the naming of “lecture”, “lecturer” suggest a unidirectional form of instruction. The affordances of a lecture room are related to maximising the instructional impact of the lecturer, and hence it is not surprising or expected that this environment would encourage student vulnerability.

By contrast the Facebook environment is built around a conversational metaphor of posts and comments and as such affords and encourages dialogue, where dialogue invokes vulnerability. Yet, as discussed in the previous chapter, this conversation-centric form of learning does not afford easy control or organisation, as is possible in a lecture room.

The following student expresses it as such;

“**Sindisiwe Bongekile**: Sometimes it is more intimidating to talk in front of the class than typing a message on FB” (FG1-P1)

Virtually raising their hands within the Facebook environment by posting or commenting was commonly expressed by the students as being easier to do.

“**Shiren**: we are all here to learn, and i think by using Fabspace alot of interaction is hppening because no one is shy or scared to pick up their hand and ask” (FG1-W2)

The question this raises is why is it that the Facebook environment encourages vulnerability? The next section considers the mechanisms that facilitate vulnerability in this Facebook learning environment.

7.2.1.1 Facilitating Mechanisms

There are three facilitating mechanisms within an asynchronous, technologically mediated environment such as Facebook that facilitate vulnerability, *viz.* anonymity, temporal gap, and spatial gap.

The first, and most obvious facilitating mechanism arising from the conceal-able affordance of the Facebook page is anonymity. By posting anonymously the students can “save face” when asking a “silly question” or making a “silly comment” and thereby limit their vulnerability while still making themselves open to learning. The following conversation thread between two students in a focus group discussion explores this.

Shiren: i do admit if i wanted to ask a dumb question i will try to anonymous lol

Qwabe: @Shiren, I think there's no such thing as a dumb question...Why exactly do we want to hide?

Shiren: @Qwabe, yes but trust me many times i had a dumb questions and most of us google it!

Qwabe: @Shiren, lol... I think this space is promoting freedom of speech and eliminating that eye you don't want in class when you say something you're not sure of... (FG1-W2)

Here Shiren suggests that the use of the anonymity cover provides a way to ask “dumb questions” without fear of sanction. Shiren then goes on to explain how “dumb questions” are either asked anonymously or “most of us google it” - implying the student searches for the answer online where once again their “ignorance” will not be exposed or judged, and as Qwabe concludes thereby “eliminating that eye you don’t want”.

The following student in their reflective journal suggests that posting anonymously is “much safer” and provides a way in which students can “gain confidence” while making themselves vulnerable through “sharing their opinion”.

“It is actually much safer to use FaBspace if on is afraid of criticism and still needs to gain confidence in sharing their opinion and actually have an opinion to raise.” (RJ-47)

The second facilitating mechanism that encourages vulnerability is the temporal gap that exists between the time a post is made and the time of the responses. A Facebook Page is not a synchronous chat environment, although this feature is available via both apps and Facebook chat. The main learning environment used for this course (Facebook Page) was an asynchronous space where responses to posts may be anything from seconds to days later. This provides a temporal gap within which the student has time to think about their response.



Fab Space if they are video chatting and able to have a face to face conversation the might as well have one.with video everything is more impromptu.think on your feet..knowing that girl is looking directly in the eyes...and all you can say is hi..with text its more rehearsed.people have a chance on what to think about before they text it..text provides the real time connection of a face to face convo with the distance one needs to think properly like in an email.#justsaying
20 February at 12:34 · Like

Or as Sakhile says, this temporal gap allows the student to “do some research”.

“**Sakhile**: I think I learnt the most when I was in some discussion where the lecturer would ask questions. using facebook allowed me to do some research during the discussion and I found that I learnt a lot this way.” (FG2-P1)

In contrast, synchronous chat rooms (and by implication face-to-face environments) create a pressure to think on the spot and result in responses such as the one below from a synchronous focus group session in the chat room.

“**Ncamiso**: i cant think of any answer now” (FG1-P1)

Another aspect of the temporal gap facilitating mechanism is that a student can, in a sense, invoke the right of no reply. Due to the asynchronous nature of the environment a student can simply choose to not reply to a question or critique of their post. This is not as easy to do in face-to-face environments where a question directed at a person anticipates a response of some kind. The silence of no reply in an asynchronous online environment does not carry the implication of “I don’t know”, rather it could equally be attributed to the respondent simply not having seen the comment.

The third facilitating mechanism that encourages vulnerability is the spatial gap. Unlike a face-to-face environment, all communication in Facebook is mediated through technology. So in addition to being able to insert a temporal gap for thinking, there is also a spatial gap

between people that appears to embolden people. Nosipho says that this causes “things...to come out...much easier” thereby encouraging vulnerability.

“**Nosipho:** ...things jst seem to come out on social networks much easier than face to face” (FG1-P1)

As Ishkar suggests this encourages them to be vulnerable by expressing “an opinion...(they) would not have expressed”.

“**Ishkar:** on a platform like facebook we are allowed to express an opinion...which i would not have expressed otherwise” (FG1-P1)

Another aspect of the spatial gap, inherent in technologically mediated environments such as Facebook, is that tone and other non-verbal cues are not available as they are in face-to-face environments. Students made use of a range of tonal proxies such as hashtags and emoticons to enrich their textual communication. However in addition to communicating tone, these proxies were also used as a means to facilitate expression, and hence vulnerability by indicating that the post is an opinion rather than a proclamation of fact. The following examples from Fabspace illustrate the use of these tonal proxies.

... think properly like in an email.#justsaying

“...adding my 2 cents”

“This is just my opinion”

“Just questions to consider... :)”

7.2.1.2 Vulnerability and content

Conversation-based learning approaches such as those supported by environments like Facebook are rooted in vulnerability. While a student can simply be an observer of conversations taking place between others, engaging in these conversations is where the richest opportunities for “acquiring knowledge through the process of actant connections” is made possible. However contributing to these conversations, either by seeding a conversation

with a post or engaging in the conversation via a comment makes the poster vulnerable to comment and critique. Becoming vulnerable means putting your content “out there” knowing it may receive comment. It means asking questions, knowing you may appear to look “stupid”. It means making comments that may appear to be off the topic. However in all of this vulnerability there are opportunities for learning.

Each time a post is made, each time a “silly” question is asked, each time a misguided comment is made, both the lecturer and the other students are given an opportunity to correct or question the “silly”, “wrong” or misguided content. Should these posts not be made it would not be possible to engage the posts/comments and thereby hamper opportunities to learn. Vulnerability is therefore a key pedagogic device of online spaces like Facebook, where learning is based on conversation. So while in an offline lecture-based environment, the need for student vulnerability is not as important due to the instructivist pedagogy, this is not the case in this online conversation-based environment.

However this vulnerability-based learning is not just around the content posted, it is also around the actions taken within the environment. As discussed earlier, activities in Facebook can be categorised into words and works. Students in Facebook can also *do* things, such as creating artefacts (images, videos, etc.), changing the Page design, adding/removing applications etc. These too make the student vulnerable to critique. On one occasion Brian changed the name of the Fabspace Page to his own name as he attempted to experiment with the Facebook Page as indicated by this comment.



Thabo Mangele Brian what happened you changed the name of the page to yours
13 February at 17:00 · Like

Reflecting on this in the focus group discussion he said that he felt “a bit embarrassed, because I thought my classmates will be quick to criticize me” (FG2-W1).

A similar situation arose when Ebrahim decided to unpublish the Facebook Page after failing to garner sufficient votes via a poll he had set up. Explaining his decision to immediately

republish the Page he says that, “people inside and outside FaBSpace immediately began to email me asking why i took the decision. i explained myself but was asked to please republish” (FG2-W1).

In both these situations the impact of doing something in the Facebook environment resulted in the students either fearing criticism or receiving criticism for their actions. This vulnerability associated with doing things in the environment caused some students to refrain from altering the environment in any way. Vela, replying as to why he did not add any new apps (part of the extend-able affordance of Facebook), said the following.

“**Vela:** to be honest, i thought that adding new app will disturb...i felt that adding can annoy my classmates, so i didnt want to do it” (FG2-P1)

So while both words and works invoked opportunities for vulnerability, the central tenet of Facebook’s conversational approach revolves around posts, comments, and actions and the associated vulnerabilities. In the following post a student merely refers his/her fellow students to a discussion around a training institution’s use of online learning. However even this seemingly innocuous comment makes the student vulnerable as is seen in the reply.



Fab Space

PC training using technologies for education

PC Training :: Enrol Today & Secure Your Free Tablet PC!
www.gopctraining.co.za
PC Training & Business College, being a hybrid provider, currently operates Higher Education (HET)

37 People Reached · 1 Person Talking About This

Like · Comment · Share · 19 February at 11:59 ·



Ebrahim Hassan Adam We've discussed this in a previous topic... :) I hope to see this technology adopted more widely... lol we had a nice debate about it but widespread adoption is possible in the near future... ;) Govt subsidies, buying in bulk

Ebrahim points out that the point this post raises has already been debated in a previous post, in a sense pointing out that this is a “silly post”, akin to a “silly comment” in a lecture environment. All three vulnerability-facilitating mechanisms are used in this exchange. Firstly the original poster makes use of an anonymous persona to share the information. Secondly Ebrahim uses emoticons such as lol, :), and ;) as tonal proxies to indicate his soft critique. Thirdly, the original poster makes use of the temporal gap of Facebook, by choosing not to reply to the critique.

So as in the offline environment, the issue of vulnerability still remains, however what the Facebook environment offers through anonymity, and the temporal and spatial gaps is increased opportunities for expression. While these facilitating mechanisms encourage expression and vulnerability they do not necessarily lessen the students need to do “things at an excellent level”. The affordances that give rise to these mechanisms that facilitate vulnerability are at the same time resisted by the affordances that cause the content to be exposed to a wide audience (see expose-able affordance, Chapter 5).

“The activities were not so difficult to do, but there was pressure of doing things to an excellent level.” (RJ-31)

“being given a platform to convey insight is not only absolutely fantastic but it also makes me think like a professional.” (RJ-54)

Kelchtermans (2005) says that “vulnerability is not only a condition to be endured, but also to be acknowledged, cherished, and embraced” (p. 999). Vulnerability is a key principle in how students learn in Facebook. Gordon (1974) identified five characteristics for teacher-student relationships, and the first of these is openness or transparency, which is vulnerability. As such, vulnerability plays a key role in learning, not just in online spaces but also in offline learning environments.

Dale & Frye (2009) say “when teachers view themselves as learners, there is a sense of vulnerability that their students are able to sense; they are open and more perceptive to the subject(s) they are teaching and to the students’ needs.” This vulnerability is required both online and offline, both by students and by teachers. However it is within online spaces, and

particularly in this research's focus on Facebook, that vulnerability emerges as imperative to how learning is enacted. This is because vulnerability extends, as per the connectivist notion of "openness", beyond the confines of a classroom or a closed online group; it extends to the public, or friends of friends, who can also potentially see and comment on content shared by the students. Vulnerability may be important for learning, whether online or offline, yet vulnerability is also factor of the impact it can potentially have. In a closed space the impact is limited to the learners, and as such there is less risk in students exposing themselves. In an open space, such as Facebook Pages, there is greater risk of impact as not only are students posts exposed to the public, but they are easily shareable too.

However linked to this higher impact of vulnerability is the ability of students to conceal their identity in Facebook, if they feel this is necessary, which is not possible in a traditional learning environment. So while the impact of exposing content has a greater quantitative impact, in terms of number of people, anonymity can mitigate this thereby reducing the personally attributable impact.

Rambe (2012) observed in his study of Facebook that "students gained confidence in posting questions as they realised that they were not the only ones with problems" (p. 14) thereby encouraging discussion and conversation. By the students posting, and making themselves vulnerable, others were also encouraged to post and hence make themselves vulnerable to learning. Yet, this represents only part of the learning process, as it is through validation that vulnerability is ultimately facilitated, as is discussed in the next section.

7.2.2 Validation in Learning

While posting makes students vulnerable, it is vulnerability that enables the second element, validation to be activated. Validation takes place through comment, agreement, disagreement, and likes on posts. Validation is a response to the offer to engage, created by students posting and hence making themselves vulnerable. Offline spaces such as raked lecture theatres are not traditionally designed to encourage either vulnerability or validation through dialogue but rather are designed to support instructional delivery. As Ravenscroft, et al. (2007) say, "a dialogic space for a group is developed through...the interface design legitimising

challenging, critiquing and questioning behaviours that may seem too impolite, conflictual or even ‘upsetting’ in more natural conversation” (p. 53). The Facebook environment provides such a dialogic space that legitimises challenging, critiquing and questioning and thereby provides a mechanism for validating the content.

The role of validation in learning in Facebook is not only vital to the process, it is also necessary to provide a feedback mechanism. So while posting content makes the poster vulnerable to critique, there is also the potential the content will go unacknowledged. This occurs when there are no Likes or comments on the post. While offline environments provide other non-verbal cues to a content provider, such as eye contact, head nods, etc., this is not the case in online environments. Without some form of explicit interaction with the post, the poster has little indication if his/her post was agreed with, disagreed with, or even noticed. Not only does this lack of validation limit the learning opportunities, as there are no actant connections, but it also causes the content to quickly be lost in the Page stream. So whereas some level of audience silence is acceptable, and often required in instructional learning environments, a digital silence is not acceptable in online learning spaces where actant connections take place through content validation.

Comments and Likes that attach to a post cause the post to resist the flow down the Page stream, but more than this it indicates the group’s view of the importance of the content for discussion. Even if there is disagreement about the point of view raised in the post, the activity around the post nonetheless signals the validity of the content for debate and discussion. While comments extend and expand the discussion, Likes play an important role in providing a simple “nod” of agreement as might be displayed in offline environments. Once again the use of Likes is important in Facebook as sometimes posts attract no comments but the Likes can cause the post to gain density and resist the flow down the stream and thereby also validate the content of the post¹³.

¹³ Interestingly Moodle, the system the students were using for other courses does not have a “Like” button.

7.2.2.1 *Validation is a process*

While the clustering of activity around a post validates the content of the post for discussion it does not necessarily indicate the correctness of the content of the post. As Williams, et al. (2011) say, “One of the central problems for learning is how to ensure the validation of knowledge and self-correction of the system” (p. 3). In traditional prescriptive learning systems the methods of validation are well established and normally involve an expert (the lecturer) indicating the content correctness. However in emergent learning environments such as Facebook the validation of the correctness of knowledge is retrospective through the emergent consensus of the group. This can of course, at least initially, lead to false validation, where content is deemed to be correct by the group but is in fact incorrect. As Williams, et al. (2011) point out “emergent learning is unpredictable but retrospectively coherent, we cannot determine in advance what will happen, but we can make sense of it after the event” (p. 4).

The issue with this form of group-based, retrospective validation is that at a point in time the content under discussion may be “incorrect”. In traditional learning environments this may be viewed as unacceptable where “being correct” is the immediate goal. In emergent online environments such as Facebook or collaborative environments such as Wikipedia this concept of “correct” is superseded by the concept of “correcting”. This means that at any point in time the content may not be completely accurate, or correct, but through the process of micro engagement by multiple actants the content is continually correcting.

This shift in terminology from “correct content” to “correcting content” represents a shift from an adjective focus (correct) to a verb focus (correcting). As discussed in the previous chapter, learning is defined within this emergent environment as a process and not a state. So in Facebook the *process* (verb) of correcting is seen as learning more than the *state* of being correct. This does not negate the movement towards correct but the focus is on the process and not on the state.

This once again highlights the difference in focus between a content-centric view of learning and a conversation-centric view of learning, where learning is continually in process. “Many academics still dismiss emergent learning and Web 2.0 as peripheral or even irrelevant to

“real” formal learning because they see no mechanisms for validation and self-correction” (Williams, et al., 2011, p. 5). This form of learning is therefore based on a process where validation of the knowledge takes place through a process of self-correction based on the interactions of the actants in an open system.

7.2.2.2 Validation of Poster

In addition to validating the content, the other related aspect of validation is validation of the poster. As mentioned previously, posts attach to the poster whereby there is a sense of ownership of the created content. Therefore there is a level at which validation of the content may act as a proxy for validation of the poster. This is seen in the following comment made during the focus group discussion where Kaahsifa felt that others seeing her work gave her a “good feeling”.

“**Kaahsifa:** well some1 said earlier that u get to learn from your other friends submissions. this is good coz in any other world, u would have to submit just to the lecturer and only he would see it not the whole class...ALSO... me being the conceited person I am, my friends can view my awesome wen i post on the group and not only the lecturer like im making a video for my web 2.0 description of myself. the whole class gets to see my hard work and effort even tho i dont know all of them. its a good feeling i must admit” (FG1:W1).

However other students felt that the validation of the content was more important than validation of the poster, and therefore posting anonymously was a useful way to share content that would shift the focus to the content and not the poster. In the following post, made in a reflective journal, the student says that “recognition of myself...is not important...People are entitled to do as they place. I personally prefer posting as FaBSpace, because recognition of myself as an individual is not important in a learning space. Learning and sharing knowledge is the key aspect.” (RJ-2)

Some students felt that the focus should always be on the content and not the poster at all. The following student suggests in his/her reflective journal that the Facebook environment is

“about learning” - “It is about debate without attacking another , It is about learning without being at the bench or in classroom environment as such.” (RJ-26).

However separating content from the poster is not always possible. In an offline world the speaker is closely associated with the content because the speaker is seen and their credentials known. However in an online world where identity can be masked, the link between poster and content is broken. While the above student argues for this saying that it is about the content, others felt that the poster in some way validates the content by who they are.

“it could be a problem when participants publish without their name, it brings confusion on who wrote what , is it the administrator or somebody else” (RJ-25) and “i don’t know but there is that missing link when someone posts as fab space. Name are important. ” (RJ-41)

However what is key is that, whether or not there is any validation that attaches to the poster, the content is deemed to belong to the group as does the learning. “What I was learning, was not only mine but belonging to the entire group.” (RJ-18)

There is a collective knowledge that is not attributable to anyone but to everyone - “I think the fact that everyone’s post appears as fab space is the best idea since this makes us feel the momentum of the learning space and its like its promoting our page to our minds first.” (RJ-76). As discussed in the definition of learning, the learning does not reside in the actants but in the actant connections.

The next section explores an example of the interplay between vulnerability and validation and how this impacts the student learning experience.

7.2.3 Vulnerability and Validation

The interplay between vulnerability and validation is central to learning in an online collaborative space such as Facebook. This interplay between vulnerability and validation is indicated in the first learning activity the students needed to undertake. This activity required the students to create a Web 2.0 representation of themselves. The task required them to firstly understand what a Web 2.0 representation was, and secondly decide how to create such a representation.

To give them an example I created an image of myself based on a word cloud, which is a common representative form used in Web 2.0. A word cloud is a cluster of words where larger words indicate more importance of the word and smaller words indicate less importance of the word. This was intended to be illustrative, not prescriptive, so the students would understand the concept, and was one of potentially many ways of fulfilling the task.

This was the first activity for the students in the learning space and for many of them this was the first time they were posting and making themselves vulnerable by creating content. An analysis of the images created, and the sequence they were created, indicates the interplay between vulnerability and validation.

Table 14 depicts the sequence and types of posts made by the students during the performance of this activity.

No.	Date	Type	Who	+ve Comment	-ve Comment
1	08-Feb	Word Cloud	Me		
2	09-Feb	Word Cloud	Valencia	x	
3	11-Feb	Word Cloud	Avrishka		
4	11-Feb	Word Cloud	Shiren		
5	11-Feb	Word Cloud	Rebashani		
6	11-Feb	Other (Video)	Mpumulelo	x	
7	11-Feb	Other (Animation)	Vela		
8	12-Feb	Word Cloud	Shanton		
9	12-Feb	Other (Avatar)	Shiren		
10	12-Feb	Other (Image)	Phomolo		
11	13-Feb	Other (Image)	Violet		x
12	13-Feb	Other (Image)	Nigel		
13	13-Feb	Other (Image)	Ishkar		
14	13-Feb	Other (Image)	Unknown		x
15	13-Feb	Other (Image)	Sindisiwe		
16	13-Feb	Word Cloud	Vela		
17	13-Feb	Word Cloud	Violet		
18	13-Feb	Other (Avatar)	Siyabonga	x	
19	15-Feb	Word Cloud	Manshil		
20	15-Feb	Word Cloud	Akshay		
21	15-Feb	Word Cloud	Mesuli		
22	17-Feb	Word Cloud	Ntombifuthi		
23	17-Feb	Word Cloud	Brian		

Table 14: Vulnerability-Validation interplay for Activity 1

The first illustrative post is made by myself, which leads to Valencia (2) posting a word cloud representation the following day. As mentioned, her creation of this content makes her vulnerable to comment and critique. I post a positive comment on her submission and the impact of this validation is reflected in the next three posts (Avrishka, Shiren, Rebashani). All three of these posts continue to use the same form of representation (word cloud) for this Activity, as this appears to represent a minimised vulnerability. However on 11 Feb Mpumulelo (6) uses a video to represent himself. This represents a departure from both my illustrative post and the previous four posts by students and thereby makes himself vulnerable to critique. His novel representation attracts positive comments from me and from other students, thereby validating his post. This appears to result in a change in the types of representations used by the next students. Eight of the next nine posts (7-15) contain other forms of Web 2.0 representation such as images, animations and avatars. However critiques on two of these alternative submissions (11 and 13) appear to cause the students to revert

back to the “safer” word cloud representation with seven of the remaining eight submissions after these critiques (16-23) being word clouds.

There is only one student (Siyabonga, No. 18) in the final eight submissions who makes himself vulnerable by creating an alternate representation. Interestingly in his reflective journal he reveals his struggle with the tension between vulnerability and validation that this caused.

“When it was time to do activity 1, I found it quiet challenging and exciting at the same time. This is due to the activity 1 posts my fellow students had submitted, the post were so good especially the task where we had to put any Web 2.0 item that described us. I witnessed a lot of people falling to the trap of doing things as they have been done, as they were sort of trying to mimic Craig’s picture but in different ways. It was challenging but I decided to create an avatar of myself, and believe that it described me well. The excitement was caused by the need to be different and to stand out from the rest. The activities were not so difficult to do, but there was pressure of doing things to an excellent level.” (RJ-31)

Here he talks about the tension between vulnerability and validation. On the one side he wants to try and “stand out from the rest” and not just “mimic Craig’s picture” thereby making himself vulnerable, yet at the same time he is aware of both the positive and negative comments of previous submissions (validation). He describes this tension as “challenging and exciting at the same time”.

The interplay and tension between vulnerability and validation is where learning is enacted within this Facebook environment. By creating content the students become vulnerable to comment and critique, but this equally provides opportunities for the process of learning to be enacted as content is correcting. In the example above Violet submitted a second representation, but also chose to not comment on my critique, so invoking the vulnerability facilitating mechanism of no response.

Darrow (2009) pointed out that connectivist learning approaches are about students filtering, analysing and synthesising information. However because of the underlying tenets of

Connectivism, especially openness and autonomy, the student is made vulnerable when engaging in these activities. Yet residing in this vulnerability, this opening, are the opportunities for the counterpoint, validation to operate. Validation brought on by the underlying connectivist tenets of meaning making connections, and distributed stored knowledge, helps strengthen connective knowledge networks and thereby facilitate learning.

While the learning discourse is marked by the continual negotiation between vulnerability and validation, this discourse itself is also in relationship with the overarching power discourse. The next section will consider the power discourse within the Facebook learning environment.

7.3 Power Discourse

Having considered the learning discourse, this section will consider the power discourse. Habermas (1987) argued that from a discourse perspective, power and knowledge are inextricably intertwined. Even the concept of validation carries within it an embedded sense of power. Posts that go unvalidated quickly disappear into obscurity, whereas those that are validated, through conversation and Likes, gain a density that opposes this flow and thereby attracts additional interaction.

Rambe (2012) says that little is known about interactional power in social network environments, and as such it is important to attempt to unpack this dimension of SNS learning environments. However, it is firstly important to understand what is meant by power in this analysis. Power, is not seen as being some innate strength, but rather as Latour (2005) argues it arises by actants assembling allies. Power is therefore defined by the aligning of actants, or nodes in the network, to use connectivist terminology, where the strengthening of connections creates power alignments, which ultimately results in learning.

Harman (2009) says that the “force of an actant remains in doubt, and hinges on a decision” (p .20), and as will be discussed below, these are both decisions to act or not act. When actants Like, vote, comment, etc. they create alignments that create power structures and

dictate both the direction of the learning discussion, and even the way the Facebook space is used for learning.

Hawkins (2004) suggests that “power is a social construction, which privileges certain ideas, relationships, and meanings while disempowering, or marginalising, others” (p. 22). It is this alignment that becomes obvious within the Facebook environment as actants assemble allies, or attempt to assemble allies as they navigate the tensions between the learning and power discourses. “Power is never *possessed*. We either have it in *potentia*, but then we do not *have* it, or we have it in *actu*, but then our allies are the ones that go into action’ (Latour, 2005, p. 174).

The following section will consider how the power discourse is enacted within the Facebook environment and how it impacts, and is impacted by, the learning discourse. Firstly how control is handled in the Facebook learning environment will be considered. Next the power structures that were invoked to manage the environment will be considered. Lastly the emergent power discourse will be explored.

7.3.1 Control

“What makes power hold good, what makes it accepted, is simply the fact that it doesn't weigh as a force that says no, but that it traverses and produces things, it induces pleasure, forms knowledge, produces discourse. It needs to be considered as a productive network which runs through the whole social body, much more than as a negative insistence whose function is repression” (Foucault, 1980, p. 119). Notions of control tend to carry with them a “force that says no” and in many respects this is seen in instructor-led learning environments. However the design of the Facebook Page decentralised control allowing the students the ability to design and chart the direction of the learning. However what emerged was not simply a transference of control from one to many, but rather a “productive network” of negotiated, or as will be argued below, retrospective control. These principles align closely with Latour's actant power notions as well as Connectivism's distributed knowledge through meaning making connections.

One of the key affordances of the Facebook environment is control (see Chapter 5). This afforded the students opportunities to create content, alter the learning space, edit or delete other students and their comments, hide their identity, etc. Compared to traditional offline environments where the control typically resides with the lecturer this environment provided an opportunity for divested and shared control over the learning process. While there were opportunities for the students to exercise this control there were still restrictions in place in terms of the pacing, assessment, content etc. (see discussion in Chapter 5).

As already discussed, all students were given administrator rights. These rights not only enabled the students to have full control over the design, membership and content of Fabspace, but it also allowed them to post anonymously. However from the outset it became apparent that this “transference” of “power” was not simply a transaction, but one that required tentative exploration.

For example, early on in the course there was an issue with the Fabspace Page that Ebrahim knew how to fix. Yet despite both his knowledge in the area, and being empowered to act on it (being an administrator), he seeks approval from me as illustrated below.



Ebrahim Hassan Adam You need to set allow people to post on the wall... it will need people/members to show posts from "everyone (most recent)" - this has caused problems on other pages (where people missed posts). a solution to this is posting course related announcements as "FaB Space" :) - can i change the setting?

13 February at 19:04 · Like



Fab Space Ebrahim u can change whatever u think will work. This space is "our" space and whatever will work best for our learning we should do.

13 February at 19:10 · Like



Fab Space ...Craig :-)

13 February at 19:10 · Like



Ebrahim Hassan Adam :)

13 February at 19:13 · Like

Hawkins (2004) argues that “knowledge is a form of power, and it is power that validates and enforces specific claims to know in specific ways” (p. 19). However in this example Ebrahim, despite having both the “power” of knowledge and the power to act upon this knowledge, still seeks approval before acting. As Hawkins (2004) continues to suggest “nor does each participant’s voice carry equal weight; some are heard and taken up, others ignored and perhaps even resisted” (p. 19). This appears to be the case here where the student does not perceive his “equal weight” as regards to enacting within the environment. This seems to indicate that the transference of power is not simply a matter of “empowering” but also a matter of accepting.

One of the advantages of a Facebook Page over other spaces within Facebook, such as Facebook Groups or Events, is that it allows administrators to add applications (see extendable in Chapter 5). However this too was another example where students seemed reluctant to take up the opportunity to expand the learning environment. Early on in the course I made the following post indicating how I had added the Forum application and encouraging the students to add other suitable applications.



Fab Space

Hey everyone – I added an app (see left) called Forum – see if you find this useful...we could use it for notices or whatever else would make life useful. Hoping to see some other useful apps from everyone. Remember this is our space so we want it to work for our learning – Craig

33 People Reached

Like · Comment · Share · 14 February at 08:50 ·

Yet despite this, little use was made of the admin right of adding applications. Reasons listed by students for not adding applications included “I felt all the necessary apps had been already added”, “i do not like technical stuff”, and “i thought that adding new app will disturb...i felt that adding can annoy my classmates, so i didnt want to do it” (FG2-P1). While not seeing the need for any additional apps, or not knowing how to add an application are expected, what is surprising is the final comment of not wanting to “annoy my classmates”.

This highlights an interesting insight into the power discourse that is being enacted within this environment. It appears that while students were aware of their rights as administrators they were tentative in exercising these rights due to the potential impact on others within the learning environment. This was demonstrated in the interplay between the conform-able and conduct-able affordances discussed in Chapter 5. The impact of this will be explored in more detail in the next section. “Control” tends to suggest an innate power that exists within the administrator privilege of the students. Yet, as Latour (2005) argued, power is not innate but the result of assembling allies. This is depicted by the students reticence to act on the apparent “innate” power they had, but rather their recourse to getting prospective approval (assembling of allies) before acting, as discussed below.

7.3.2 Decision Structure

While traditional learning environments with instructivist pedagogies may naturally adopt vertical authoritative power structures, the move to a democratised online space creates confusion (at least initially) around power structures. This issue of power and decision-making was addressed in the initial focus group. Unsurprisingly two major views arose, the first being that I as lecturer should still be the ultimate “leader” making all important decisions, and the other view being that a democracy based on voting is invoked to make decisions.

The following two comments indicate students who supported a more traditional “leader” approach to control.

“**Shiren:** i think we need the rule where we know Craig is our leader so he is in charge because he is the lecturer, and all questions regarding rules being broken should be addressed to him” (FG1-W2)

“**Avrishka:** I think that students contribute ideas/ suggestions etc but as the Lecturer/Leader/Highest authority, the decision should be made by Craig” (FG1-W2)

However others felt that as the space afforded them all a voice, and rights to enact decisions, that therefore decisions and actions should be taken democratically.

“**Teddy**: Decisions should be what everyone agrees upon and I would agree with Herin:democratically.” (FG1-W2)

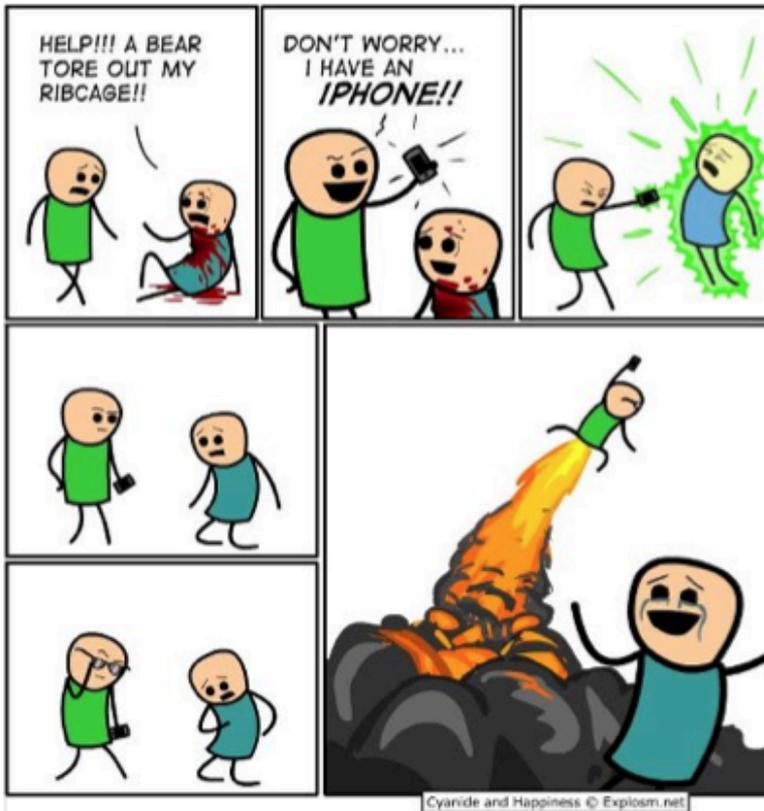
“**Tehseena**: I think we should have a vote if its major but minor stuff can just be changed by Craig” (FG1-W2)

Besides the Like button in Facebook, which provides some form of indicative support for ideas, Facebook also provides a poll feature that allows administrators to set up a voting mechanism as is depicted below.



The poll feature was used twice during the course (10 Feb and 13 Feb) in an attempt to get consensus around opening or closing of the page to outsiders. However after both polls attracted hardly any votes it appears this method of decision-making was discarded.

Students also attempted to make use of the concept of “voting” simply by asking people to post a comment to indicate their agreement as depicted in the example below.



44 People Reached · 2 People Talking About This
 Like · Comment · Share · 17 February at 07:49 ·

Riyaadh Seedat and Ebrahim Hassan Adam like this.



Fab Space Votes for this as profile pic...???
 17 February at 09:40 · Like



Ebrahim Hassan Adam In favour :P
 17 February at 15:42 · Like



Kaahsifa Ahmed No one is saying anything!!! Should i put it up anyways??? I AM ADMIN after all 8-) lol
 17 February at 18:12 · Like

This method was also used on two occasions (twice on 17 Feb) and thereafter it too seems to have been abandoned. In fact, after someone unilaterally adopted the timeline, the following comment was made, yet no evidence of voting was used.



Tehseena Meer plz use for announcements,why couldn't we wait till the page was published by facebook on 31/3, that way whoever wanted to use timeline could and who never wanted wasn't forced to. We should've had a vote

2 March at 13:30 · Like · 1

“All relations in the world are of only one kind: trials of strength” (Harman, 2009, p. 25). This is clearly the case in these examples as the students wrestle with the concept of power. There is an underlying discourse that sits in relation to the learning discourse; a constant trial of strength.

7.3.3 Alternative decision model

While students at the start of the course suggested that either the existing offline vertical leader-based autocratic model should continue or alternatively a democratic voting-based model be followed, neither of these emerged as the enacted decision making model.

de Villiers (2010) in her study of the use of a Facebook Group for learning also observed this issue as she tried to move from “sage on the stage” to “sage on the side”. She noted that some of the students wanted her to take more control while others were happy to try and be more democratic. de Villiers (2010) argued that “learner-empowerment is part of the experience” (p. 188). “It is never the actant in naked purity that possesses force, but only the actant involved in its ramshackle associations with others” (Harman, 2009, p. 20). The students seemed to be aware of this, and as a result sought out a new way of making decisions that did not isolate them but rather extended their influence through connective power.

There were a few attempts to get me to make the “final decision” as indicated earlier in this section but as I informed the students that they had the power to both decide and act upon decisions there was some movement towards the democratic model. However vulnerability and validation enacted through mechanisms of anonymity, silence, expression, etc., that are key parts of the online pedagogic device, are in conflict with a traditional voting model. This appeared to cause the democratic approach, based around voting, to be abandoned in favour of a third approach. This third approach follows the following process.

Firstly it involves some form of discussion. Students would raise an issue and then attempt to get opinions from those who were likely to be impacted by the decision. In the following example the student puts forward suggestions on how to proceed with one of the activities.



Fab Space

I would like to make an appeal to the participants in group 4, I have few suggestions on how we can proceed with Activity 2. It is a demanding task and it requires little of time from each one of us. Dilebo, Kanhai, Marajh, Rapiti and Vela. I would like to create a group of the above participants, further we should be to exchange email addresses to compile what should be posted and agree by exchanging ideas that we individually build on the topic asked in Activity. Guys, sooner the better since we need a session in the chat room. My direct email address is osembe.lt@gmail.com

If you have other suggestions on how to go about the activity, please share with us all.

34 People Reached

Like · Comment · Share · 18 February at 18:10 ·

While this attempt at gathering opinion and consensus was often used, there were occasions when this step, and hence the second step, were skipped and the third action step was simply pursued.

Secondly there is a period of waiting, both for input and to see if some agreement can be reached on the way forward. Unlike the traditional voting approach there was no formal invocation of voting or even expectation of votes. In fact this period may include indicators that a decision will be enacted regardless of people's non-participation as depicted below.



Kaahsifa Ahmed No one is saying anything!!! Should i put it up anyways??? I AM ADMIN after all 8-) lol

17 February at 18:12 · Like

Thirdly there is action. This is unlike a traditional democratic approach that is based on a majority consensus but rather this is a tentative action based on perceived opinions or even

lack of opinion. A student would simply make the decision and act upon it, whether it be a new profile picture, setting up a suitable learning area for an activity, or the choice of the initial Web 2.0 map for their group activity.



Fab Space

so i have completed setting up our groups fan page please like it and view the material thanks a bunch – nigel

37 People Reached · 1 Person Talking About This

Like · Comment · Share · 26 February at 19:31 ·

Thabo Manqele likes this.



Kaahsifa Ahmed Av im scrapping the event and creating a proper group. The event is being faulty...

17 February at 19:57 · Like

The students appeared to realise that garnering votes in a traditional democratic sense does not work in an online environment like Facebook. Votes and discussion are indicative of some level of support but the best method of determining actual support in this online collaborative environment is retrospectively not prospectively. The students would therefore implement their proposed idea and wait to see what feedback (if any) this got from their fellow students, after the fact. If there was either no feedback (which is more typical) or positive feedback, the implemented decision would remain. If however there was negative feedback the students would, if possible, reverse the decision.

On several occasions students made changes that had no negative response from the other students. The changes therefore persisted as being accepted. However on other occasions such as the unpublishing of the Fabspace Page, changing the cover image, and adopting the timeline, there was immediate negative feedback. On two of these (unpublishing Page and cover image) the change was quickly retracted. This was not possible with the timeline issue, as the change could not be retracted.

This final step of undertaking small retractable tentative changes mirrors an approach that has become common on the web, termed the beta approach. Many websites such as Google release multiple small changes to the public, while labelling their product as “beta” as depicted in the Gmail logo below (Figure 57). This indicates that the change is being tested and should it not be accepted, it will be removed or adjusted. As O'Reilly (2007) points out this “perpetual beta” is a hallmark of Web 2.0 environments.



Figure 57: Gmail Beta Label

Not only is this beta mindset a hallmark of Web 2.0 environments, it appears that it was also subsumed into the students’ decision making process within Facebook. After some attempt at getting opinions, they would then proceed with the change. Should the change receive either no feedback, or no negative feedback, the change would remain. However should the change be resisted it would (if possible) be reversed or adjusted.

7.3.4 Homeocracy

It appears that decision making and governance in online environments is not following offline models that are either based on some form of autocracy or democracy. The most evident form of this divergence is with wikis. Wikipedia, the most notable implementation of the wiki concept for encyclopaedias, defines a wiki as “a web application which allows people to add, modify, or delete content in a collaboration with others” (Wikipedia, 2013c para. 2). The power for any person to make changes, in collaboration with others, creates a totally different form of decision making. The content is not the perspective of a single user or group; neither is the content the result of a formal voting process. Rather changes, normally small in nature, are made and then either accepted (often indicated by no

comments) or rejected by others in the group. I suggest that this new form of decision making and control, apparent within wikis, and within the Facebook learning environment used in this course, is more of a homeocracy.

Unlike both an autocracy and a democracy that reflect a more mechanistic control and structure, homeocracy draws on the organic metaphor of homeostasis that reflects a gradual evolutionary change (Robinson, 2009). “Homeostasis is the tendency towards a relatively stable equilibrium between interdependent elements” (Oxford, n.d.). As such the changes attempt to take into account the tensions between the “interdependent elements” which in this case are the actants. This reflects the first two steps of the process as outlined above, where students firstly attempt to become aware of others’ opinions by invoking a discussion or proposing a change.

Homeostasis is also the “tendency of an organism or a cell to regulate its internal conditions, usually by a system of feedback controls” (Oxford, n.d.). This reflects the third step of the process as outlined above where students would act, and then make use of Facebook’s Likes and comments (or lack thereof), as a “system of feedback controls” to indicate whether the change was acceptable or not.

This homeocratic method of control and decision making causes the environment to change, in most cases, through small incremental adjustments that are tested and if accepted, inculcated into the new space. However this homeocratic approach, while it appears to be coming from a “natural” approach to decision making in online environments, is not a natural transition. The students and myself found it difficult to relinquish traditional models that have been enacted for so long in so many domains, and in particular within education. Mukama and Andersson (2008) point out that in South Africa control is drummed into teachers, and hence learners, as part of their induction into school life. Robinson (2009) adds that for “more than three hundred years Western thought has been dominated by the images of industrialism and...linear, mechanistic metaphors” (p. 257). It is therefore not surprising that initial discussion around how to navigate this online learning space and initial attempts were around autocratic (the lecturer) and democratic (voting) approaches. However as students continued

to use the environment a more homeocratic approach developed resulting in small changes that were either imbibed into the environment, or reversed or adjusted, if rejected.

Walton (2007) observes similar changes in her discussion on the use of educational software for children, where she notes that there were “interactions which are an extension of the power relations of classroom discourse and the global political economy of software production... (but now we are seeing) children resisting this power and developing skills in interacting with, manipulating and ‘cheating’ rule-governed texts” (p. 213).

The lack of a single accountability or a formal decision making process does create a sense of discomfit and typically raises the “what if” questions as voiced below.

“**Kaahsifa:** our class was discipline and considerate. what if i wasnt? imagine what i wouldv did to fab space! oh i had ideas but i refrained from implementing them lol” (FG2-W2)

This same issue arises in wikis where trolls (people who are intent on destroying and not contributing) attempt to deface the content. However despite this it appears that this homeocratic approach continues to persist within online collaborative environments such as wikis and this Facebook learning space. So while there is a discomfit prospectively, there is a retrospective comfort as decisions and actions are validated and accepted (Williams, et al., 2011). This mutual respect for the environment and one another is articulated in the following response from Shiren in the final focus group discussion at the end of the course.

“**Shiren:** i think it was our online enviroment....i dont know how to say this....but every one knew what facebook can and cannot do, we all knew that the picture could be changed and it was changed a few times, we all respected our online enviroment and never do anything negative to our enviroment...we did respect our enviroment, it was "ours"” (FG2-W5).

This method of enacting power through retrospective negotiation depicts how actants “associate elements together, (where) every actor has a choice: to extend further, risking dissidence and disassociation, or to reinforce consistency and durability, but not go too far” (Latour, 2005, p. 198). The students were keenly aware of not extending further, and so

risking dissidence, yet on occasion it became necessary for students to make a move in order to either improve the learning environment or make a decision. However, being aware that their power was a function of alignments, these extensions were tentative and sought the retrospective sanction of the group.

Gee (2008), in his discussion of the pedagogical dimensions of learning, provides a summary of what he argues are the key principles for empowered learners.

- **Co-design:** This is where learners feel like active agents or producers and not just consumers. In terms of the Facebook space, the content was produced by the learners, and a key element to connectivist learning is producing and engaging as autonomous and self-organising agents.
- **Customise:** Gee (2008) argues that learners should be able to optimise their learning to their learning style. This too was demonstrated by some learners being more actively involved in posting, while others were content to simply comment. An analysis of the posts indicated that there were 4 categories of engagement based on Posting and/or Commenting activity.
 - The first category are those students who were amongst the top 50% of the class in terms of posting new content as well as in the top 50% of the class in terms of commenting on content. This group is referred to as Inter-active.
 - The second category are students who did not post much (bottom 50%) but were more active in terms of commenting on others' posts. This group is referred to as the Re-active group.
 - The third category are students who were active content posters but were inactive in terms of commenting on other people's posts. This group is referred to as the Intra-active group.
 - The fourth category are students who were neither active (top 50%) in terms of either posts or comments, and as such they are referred to as the In-active group.

Each of these groups illustrates a preferred style of learning, where some students appear to prefer being vulnerable and posting content (Inter-active, Intra-active), whereas others prefer to simply respond to what others have said (Re-active), and still others learn by being less engaged and consuming more than producing. The

chart below shows the various learning styles in terms of the Post-Comment Interactivity of students.

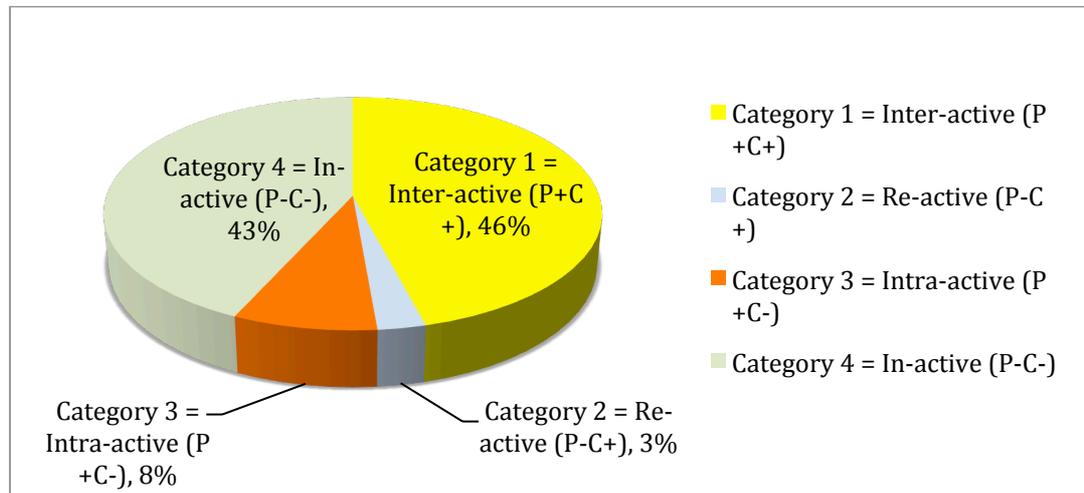


Figure 58: Post-Comment Intereactivity Categories

- **Identity:** Gee’s (2008) third principle of empowered learners involves people taking on an identity in which they are invested. As has been discussed, the students had the opportunity to either undertake engagements via their own persona, as defined by Facebook, or they could make use of the conceal-able affordance and express themselves anonymously. Students’ usage of anonymity decreased as the course proceeded (as previously discussed), which indicates a greater comfort by students with adopting their own identities.
- **Manipulation:** Gee (2008) argues that perception and interaction are connected and that students feel empowered when they can use tools that extend their area of effectiveness. Two key affordances, extend-able and expand-able provided the students opportunities to manipulate their environment, and in a sense became a proxy for the power they had been given. However as was discussed, having the “power” to act and acting on this power are not the same. The Latourian notion of power in assembled allies was strongly evidenced as judicious use was made of tools that could extend or expand the learning environment.

The changing power discourse reflects a paradigmatic change that has implications on worldviews both in terms of learning and governance in general. As Robinson (2009) says “the dominant Western worldview is not based on seeing synergies and connections but on making distinctions and seeing differences” (p. 254). The emergence of new online spaces for collaboration and learning is challenging these worldviews as distinctions and differences are replaced by synergies and connections.

7.4 Conclusion

This chapter has explored why students learn in a Facebook environment in the way they do. The chapter considered how learning is framed within two dominant discourses, the learning discourse and the power discourse. These discourses themselves sit at tension both within themselves and between themselves. The Learning discourse is composed of an interplay between vulnerability and validation. On the one side students make themselves vulnerable by posting, commenting or acting within the Facebook environment. On the other side, this vulnerability may be reciprocated by some form of validation through comments and Likes or alternatively ignored all together. The interplay between vulnerability and validation underpins the conversation-centric approach of learning within Facebook.

However the learning discourse itself is subject to the overarching power discourse that not only shapes how decisions are made but whose voice is recognised. The affordances of conceal-able and expose-able also sit at tension as students seek to have a voice, but are equally aware of the apparent judgment this exposure can lead to. While attempts to continue with a traditional autocratic leadership, or an online democratic approach floundered, the students appeared to adopt what was termed a homeocratic approach. This approach, which is commonly used in other online collaborative environments, saw students enacting decisions, sometimes unilaterally, and seeking retrospective sanction. If the decision was resisted it could be changed by any of the students and a new approach tried.

Learning in Facebook is a complex interplay between the learning discourse and power discourse. Learning was defined as acquiring actionable knowledge through the process of actant connections. Learning in Facebook takes places through actants negotiating multiple

affordances within both the learning and power discourses where both knowledge and decisions are often only retrospectively correct rather than prospectively correct.

8 Reflexion

“There I will meet with you...between the two cherubim” (God) - Exodus 25:22

8.1 Introduction

This is neither the beginning nor the end for me, but rather it is a plateau, a place between. Indeed this research has been framed by the “between”, by the tensions that exist in the space between. This space between is not “an eclectic compromise mixing elements of both, but marks a position of basically greater philosophical depth” (Harman, 2009, p. 12), a place where in the tensions themselves, new perspectives can be gained.

And so I have experienced on every plateau of this journey the tensions of being between.

Tension between representation and authenticity

Tension between categorising and emerging

Tension between order and chaos

Tension between artefact and conversation

Tension between prospective and retrospective

Tension between researcher and participant

Tension between freedom and control

This research has been born in these tensions. Content tensions, Methodological tensions, Personal tensions, and Representation tensions. The content tensions have been discussed in the previous chapters, although I am sure there is much more that can be learned by the network of competing affordances operating in this new learning environment. In this reflexion I would like to address the other tensions that have existed in this journey, *viz.* methodological tensions, personal tensions, and representation tensions. For while this research has been about exploring student learning in Facebook, it is as much also a journey of my own learning, a journey where I too would experience, even if I did not know it at the time, the very things I found.

8.2 Methodological tensions

This research made use of a Critical Online Ethnography, which enabled me to be a participant researcher, and “live” with the students in their learning experience. Yet this methodology sits at tension with itself. It was extremely difficult finding the somewhat illusive place between lecturer and participant, researcher and participant, and lecturer and researcher. The urge to “lecture”, to tell the students the answers, has been cultivated over the many years I have been a lecturer. Yet in a space designed to empower learners, I found myself wrestling with, when to solve a problem, or when to give the answer, or when to remain quiet or alternatively suggest they look for the solution. In many ways giving the answer feels so much easier than watching a discussion unfold as the students attempt to solve a problem.

There was also the tension of finding the in between being a researcher and being a participant. In a very real sense I was researching myself, as my power discourse is intricately embedded in the learning discourse of this online learning experience. The following two reflections from my own reflective journal indicate the methodological tensions experienced during this process.

“I am tempted to remove the photos link from the side of the page as I think it wastes space and is distracting. But I have decided not to so that I do not make these decisions for the students! Aargh!” (Feb 8, 2012)

“One of the things I have been trying to do and found difficult in these first few days of the process of setting up the Facebook environment is staying "out". So I only made one post, I installed the minimum apps I needed to get going. However there has been an internal conflict within me. I want to put energy into the Facebook environment, as I would using any other learning space that I engage students in. Yet I did not want to interfere or influence them. However, after today's cohort session, I realise that I am not being true to my own critical paradigm - a paradigm of activism, of change - a paradigm that does not (as interpretivist might) require me to remain "aloof", separate, outside, but one that has me as part of the space. As such I now feel that I should be more involved - I have said to the students that we are users and researchers together in this space - how can I take a lesser

role and let them do it. So, I intend to post more, add more applications and engage them more in "our" space, in order to be true to myself as a teacher, true to my paradigm and to the entire experience in Facebook.” (Feb 11, 2012)

Another tension within the critical online ethnographic approach has been the distillation process that research tends to cause. As a cyber-ethnographer, I stepped into the students’ digital world of social networks to engage with and explore how students learn in Facebook. To experience this space required me to leave behind familiar lecture theatres, traditional teaching hours, comfortable academic parlance, ordered textbooks and easily controlled teaching spaces.

Having collected my data in the form of various artefacts, such as transcripts of the Facebook Page, reflective journals, virtual focus group discussions, I then retreated to the familiarity of my office to analyse the data. Immediately the frenzied pace, the hyper-threaded communication, and the flattened power structures of the digital space receded. In “my space” I quietly reflected upon the data, drawing out the threads that seemed to arise from careful analysis. The data was filtered, clustered, and analysed as this thick data set was distilled to a reduction of its essence, so that themes could be identified, comparisons made to previous research, and theories proposed.

Finally this distillation was further distilled into a series of discrete chapters, arranged in sequenced, similar sized chunks, and then bound together in a paper-based report. This double distillation process, not too dissimilar to a whiskey distillation process, results in a finish that is often referred to as “long, clean and medium dry”. All “impurities” have been removed in order to produce a taste that is both familiar and acceptable to the academic palate.

Yet at each move along this path, from the virtual field, to the analysis, to the paper report, something is lost. Of course it might be argued that noise is removed and that clarity is imbued, and this is the role of the researcher, to provide insight into the data. However, what is lost in this distillation that possibly should not have been removed with the other so-called “impurities”? Yet one thing is clear, as I sip this academic distillation - the “clean” and “dry”

taste has lost the “roughness”, the vibrancy, the authenticity of the online space from whence it was made. What might be considered a necessary distillation could also be argued to be an entropic loss. A loss of energy, a loss of value caused by a research system that is not perfect, a system that is fraught with procedural and representational inefficiencies

Yet how else might this have been distilled so that it can be communicated? How else might the tempo, the character of the online space have been retained? How else could that which has taken place in a different world (online) be captured and shared with our world (offline)? This tension may never fully be resolved as we step from one realm into another, as we attempt to explore new spaces yet share these findings within another.

Sitting on the plateau between controlling and being a participant, between observing and doing, between lecturing and learning, between online and offline is theoretically a rich place to be, but experientially difficult. Maybe it’s because it is not a place of stasis but movement, a place of continual balancing rather than comfortable settlement, the very place learning happens for researcher and researched alike.

8.3 Personal tensions

The second set of tensions revolves around my own personal grappling with confusion, vulnerability and validation. One of the most difficult personal plateaus I had to deal with was confusion. Not only was this impacted by the methodological tensions discussed above, but also it was germane to the environment and research endeavour. The following quote from my reflective journal illustrates this confusion.

“However the reading still continued and I was continuing to feel confused. In the words of William Shakespeare - "Confusion now hath made his masterpiece!"” (April 8, 2011)

The confusion pervaded all aspects of this journey; questions around how the students would use the environment, whether someone would delete the Page, whether anonymity would prove impossible to work with, and many more unknowns. I was in my own very real way touching the edge of chaos, an uncomfortable place to be, but a place that I have discovered

is where learning takes place. “Between” is not a place of rest, it is not a place of stasis, but rather a place of imbalance, a place of movement. Yet in this movement, in this imbalance there is learning and growth. I don’t know if I will ever be comfortable with this confusion and uncertainty, with this vulnerability and imbalance, but I have come to realise that I too am learning to learn, and this is a very necessary part of my journey too. Just like the students navigate the complex web of tensions between the affordances, I too I have been attempting to do likewise.

However another personal tension I had to navigate was the “affront” to my own sense of importance and power. Once more, theoretically, it seemed right to create a space where power was devolved, where structures were flattened. Yet coming from years of operating within a vertical power discourse made this a difficult undertaking.

Before setting up Fabspace I set up a test Page that I used with another class. It was while using that, that I realised that all the posts would come from the generic Page name and not from the individuals’ names. I made the following post in my reflective journal.

“I have just set up the Facebook page - and students are starting to appear. However there is an interesting development. I have realised that when I add people as Admin, then all their posts appear as coming from UKZN@Fb - this means I have no idea who is posting what.”
(Sept 20, 2011)

After a while I decided that this unexpected anonymity affordance would be useful in allowing the students to express their views. However what I did not realise was that it would “mute” my voice, as I had to compete for attention. This led me to make the following post as I struggled with not being “heard”.

“What is interesting is that I am feeling sort of desperate to assert myself in this space - to make my voice count. At the moment I am still posting under the generic "FaB Space" - but most of my posts are tagged with "Craig". I seem to feel that they need to know this information is from me, even if it is not admin information. Is this because I want them to recognise it is from me?” (Feb 13, 2012)

I struggled with the notion of being incognito. I was the lecturer after all; they needed to know it was me who was speaking. It was not *what* I was saying that was enough; it was *who* was saying it. And so even though initially I did not change my posting preferences, I began tagging all my posts as “- Craig”, to ensure they knew it was from me. Yet even this was not enough. A day later I made the following entry in my journal.

“I also am feeling like my posts, even though tagged with name are not receiving enough attention. So, I make a suggestion or tell them something they should possibly do, and soon the post has moved down the stream. I am not sure if it has been read or is being "obeyed". Is this all about me just learning to accept democratized learning, or is this going to result in certain key information being lost in the stream of democracy?” (Feb 13, 2012)

I was between – the uncomfortable place of learning. How do I navigate this new environment where I become just one of the “them”? How do I negotiate the tension between being a lecturer and being a participant? How do I deal with giving power but then feeling disempowered? Shortly thereafter I changed my settings so that I could post as myself, I just felt I had to make sure I was heard.

“I felt I had to do something to "make myself heard" - so I changed it so that the posts I did come from me and I prefixed them with ANNOUNCEMENT. This was also then repeated in the Forum I added. Why? I feel that there are certain admin things that need to be communicated and I am worried these are getting lost in the stream.” (Feb 14, 2012)

Yet what I did not realise at the time, was that I too was experiencing the importance of the interplay between vulnerability and validation in my learning experience. By entering this space, by posting, by being anonymous I was making myself vulnerable, yet therein lay my learning journey. Yet at the same time I also experienced the need for validation. I found it difficult to deal with the digital silence that my posts seemed to be receiving. I was not used to not being acknowledged. I needed to know I had been heard. I needed validation.

This is aptly put by Bell (1998); “The researcher is fallible and vulnerable within the research context. Of course we can try to cover up this vulnerability with the garb of our profession but this instantly diminishes us as experiential creatures sharing the undertaking of our existence with others” (p. 184). My vulnerability was not something that should be covered up, but rather therein lay my own journey, my own learning.

The final part of my personal struggle was between freedom and control. Once more the theoretical position of freedom of choice seemed to resonate with other research and with Web 2.0 technologies in general. However it does not resonate with my previous academic experiences as a lecturer. I am in control and students listen! And so it was difficult when I made a post and the students appeared not to listen. In my own way I see now how I tried to manipulate them, despite trying to give them freedom. One example of this was the issue of anonymity. While I appreciated that they could post anonymously, I felt, like some of the students, that I wanted to know who was saying what. Yet I did not want to “command” them to reveal themselves. I did however make a series of posts telling them how to reveal their identity, “if they wanted to”. Yet when most ignored this I would make the post again. The following entry in my journal reveals this passive “manipulation”.

“I also reiterated that the students could change their posting preferences to reveal who they are, as they would not need to tag themselves each time - but up until now very few have done this. I will enquire about this in our first focus group.” (Feb 13, 2012)

Yet maybe this was not so much about them not “hearing” me, but once more about my vulnerability. Entering an environment such as this placed me in a place where, like my students I was vulnerable. I was vulnerable to not being heard, vulnerable to being ignored, vulnerable to being critiqued, and even vulnerable to losing the entire Facebook Page. And so while I tentatively held to my past notions of power, it was in the vulnerability that I too, like my students was learning.

8.4 Representation tension

The third area of tension that has plagued me, from when I first began to write this representation of my research, is the organisation of the text itself. As the ethnographer I am taking experiences in the digital and reducing them to text, experiences in interleaved online hyperthreads and reducing them to sequenced pages. Is there something even more fundamentally amiss than simply “cleaning” occurring in the re-presentation of the cyberspace in a paper-based analogue space?

There is much debate around issues of method and medium. Moreno (2006) quoting Clark suggests a method-affects-learning hypothesis which argues that “as long as the instructional methods embedded in the media promote appropriate cognitive processing during learning, the type of media that delivers such methods does not matter” (p. 152). However while method is vital, there is more at stake than simply the dualism of whether method or medium is more important. There is the additional issue that medium (and method) potentially embed power relationships. Marshall McLuhan (2008), considered to be the father of the electronic age (Kappelman, 2001) argues in his classic work “The medium is the message... (that) the personal and social consequences of any medium... result from the new scale that is introduced into our affairs by each extension of ourselves, or by any new technology” (p. 203).

Federman (2004) warns that too often “the medium is the message” is misunderstood in the McLuhanian sense. He says that McLuhan was “concerned with the observation that we tend to focus on the obvious. In doing so, we largely miss the structural changes in our affairs that are introduced subtly, or over long periods of time” (Federman, 2004, p. 1). If a book is the primary form of accepted representation for research such as this, then what are the “structural changes” that book-based representation has subtly introduced?

“McLuhan warns us that we are often distracted by the content of a medium... (while) it is the character of the medium that is its potency or effect - its message” (Federman, 2004, p. 2).

What is the character of a book-based form of representation such as this? What is its “potency or effect”? “A popular medium moulds what we see and how we see it—and

eventually, if we use it enough, it changes who we are, as individuals and as a society” (Carr, 2011, p. 21).

Inevitably the form of representation we use to communicate has embedded within it meanings that whether known or unknown, and to a greater or lesser extent, support the power of one social group over another. This is particularly true in learning environments that are exemplified by inequitable power relations. “All the texts, materials, resources, curricula, instructional and program designs, and interactions—the mediating devices in the environment—are encoded with messages about who and what count, for what, and how. And this deeply constrains as well as directs the possibilities and forms of negotiations and understandings that form the knowledge construction work of the classroom” (Hawkins, 2004, p. 20). What is the message embedded within our commonly accepted form of representation, the book?

Deleuze and Guattari (1987, p. 5) argue that “the book imitates the world...the law of the book is the law of reflection...even the book as a natural reality is a taproot, with its pivotal spine and surrounding leaves.” These “root book” representations fix an order departing from a single start, progressing through a sequential arrangement, arriving at a plotted end point. This reflective representation, this medium of the message speaks to an underlying order, sequencing and control, intrinsic within the very form of a book.

A book encourages binary choices by its very form - either I go forward a page or I go back a page. It also inherently abides to a sequentially charted course that moves from the beginning towards the conclusion. The medium of a book form of re-presentation embeds within it a message - a message of deterministic order, a teleological assumption of progression, a control of process. All of these represent an underlying control that is given up by the reader to the writer as he/she leads the reader through the text. Yet this sits at tension with the very space I am choosing to represent. Social networks reflect multiple, interleaved conversations that can be navigated in an endless number of ways, largely determined by the reader.

And so while I agree with Deleuze and Guattari’s (1987) ideal - “The ideal for a book would be to lay everything out on a plane of exteriority of this kind, on a single page, the same

sheet: lived events, historical determinations, concepts, individuals, groups, social formations” (p. 9), I must deal with offline restrictions; restrictions of institutional expectations, restrictions of meaningful representation, restrictions of communication, and many more.

And so the tension between the space of research and the space of representation is yet another place where I must uncomfortably sit while I learn and move. Yet as with the other tensions discussed above, this vulnerable place is a place of learning. As I grapple with representing that which I experienced in the online world in this offline representation, I must negotiate the complex web of affordances that a book itself presents to me. For it is in negotiating these myriad connections, that I too am learning.

8.5 Conclusion

“To ignore (reflection) is to abstain from a profound learning gain which is available free-of-charge within all research processes” (Bell, 1996, p. 62).

It is not possible, nor would I suggest desirable, to divorce the journey to understand student learning from my own learning journey. The two are intricately intertwined, just as this research has found that the affordances of Facebook are intricately intertwined. Separating them robs the researcher of the rich perspectives that can be gained from exploring these tensions and relationships. Likewise separating my journey from my students would also diminish the perspectives learned in this research. While the previous chapters have, in a sense, pointed forward to what has been found, this chapter has looked back to see how what I found, I also experienced.

In a very real sense I am not exempt from my own findings. At every turn, the very things I observed, I too was experiencing on my learning journey. As I grappled to understand the tensions between affordances, I was experiencing them in my learning journey. As I realised the need for vulnerability, I was vulnerable. As I realised the need for validation, I needed validation. As I observed a new power discourse at work, I was negotiating my power discourse.

This research, and I would suggest learning in any form, is framed by tension, by the links between. While navigating these tensions is not easy, the spark of learning is born in this space.

9 Conclusion

“Everybody is a genius. But if you judge a fish by its ability to climb a tree, it will live its whole life believing it is stupid.” - Albert Einstein

9.1 Introduction

Learning has always been a part of the human experience, whether it was seated around a fire in a cave, or at the feet of an oracle, or in the halls of a university lecture theatre. We have learned from family from teachers from peers. We have learned alone, we have learned in groups. Yet despite all this, how we actually learn still eludes our best attempts at understanding it. In fact, even what constitutes a definition of learning remains a point of contention. Theories abound, approaches are abundant, many work, and many appear to make sense. Yet still we are learning about learning, and maybe this is the very nature of learning itself - that should we claim to have it defined, understood, worked out, then the very essence of learning would be invalid, and so too our claims.

The more we learn about learning, the more we learn that we need to learn. Yet this is the wonder that draws humans to learning itself, the desire to understand, the desire to grow in knowledge. And so this thesis has attempted to explore learning, a quest that from the outset can never be fully realised, but a quest that is realised in the learning that takes place in the undertaking itself. As the spaces where learning takes place have shifted from firesides to classrooms to virtual environments, so too have the affordances and opportunities to explore learning. Being able to share in the exploration into these relatively new uncharted territories, that the modern generation navigates, is daunting and exciting, confusing and enlightening, humbling and exhilarating. Yet within this new place lie new questions, new answers, and potentially new directions.

This research set out to discover what student use of a Facebook learning environment reveals about learning. Like any exploration, such an undertaking is fraught with risks and opportunities. Facebook is an environment that was not conceptualised around learning (in the formal sense) but an environment established around social connections. Empowering

students to use such a space, a social space, for learning, is not without risks. Yet as the journey has revealed, these very risks, these vulnerabilities, are themselves integral to learning.

9.2 Learning about learning

Using both a Connectivist based perspective of learning, and a Latourian-adjusted theoretical framing of affordances, this research explored the actant opportunities that exist when actants - student, lecturer, visitor, and technology - interact. This lens did not seek to explore the features and benefits of technological environments but rather the perceived and invoked actions of the actants within the space. Rather than invoke the *a priori* perspectives of a technology designer or instructional designer, this lens explored the perspective of the actants within Facebook.

The analysis of actants' interactions within the Facebook learning environments gave rise to five level 1 affordances and eleven level 2 affordances. The Accessibility affordance was identified as a pre-condition affordance that refers to the ability to gain access to the learning space through multiple mediums, from multiple places and at any time. The Connection affordance referred to action opportunities that tend towards solidifying the connections between actants by connecting through the conceal-able affordance or by strengthening connections through the confirm-able affordance. The Communication affordance related to action opportunities that allowed the actants to expose or express themselves through the expose-able and express-able affordances. The Control affordance related to opportunities to control activities in the learning space by negotiating conformity through the conform-able affordance or imposing choices through the conduct-able affordance. The Construction affordance related to activities that open up the actant space through the construction of additional spaces through the extend-able affordance and the expand-able affordance.

These affordances were mapped to the Actant-Activity Affordance framework that provided a means to plot the positioning of the affordances according to Activity (Words or Works) and Actants (Solid or Open). However while this represented a static assemblage of the affordances, the analysis of the student experiences revealed that the affordances exist in

motion rather than in stasis, where the affordances sit not only in relation to the students acting on them, but in a web of attracting and repelling relationships with each other. In a Latourian sense affordances are about the “in between” where the role of connection in affordances is potentially more significant than the affordances themselves. This relationship between affordances causes them to pull and push against one another as the impact of acting on one affordance is resisted or attracted by another.

It was observed in the Literature Review (Chapter 2) that Personal Learning Environments (Type 3), with their focus on people and freedom of choice, were still floundering. Despite embedding web espoused notions of freedom, these environments have not been (thus far) the success researchers envisaged. So while the theoretical notion of freedom to configure a learning space appears to resonate with changing educational paradigmatic perspectives, students, in addition to preferring the familiar, have to negotiate a competing set of affordances. So enacting an affordance that represents freedom is resisted by more restrictive affordances such as the conform-able affordance. This suggests that new directions in learning cannot simply be determined by providing students a tool set, but need to consider how the web of competing affordances within the environment might be navigated.

Unlike the affordances identified in previous research, this research, by identifying the assemblage of affordances in the domain of the real, showed the complex interplay between affordances. Not only is learning, in the connectivist sense, a networked-based endeavour, but it also involves understanding the complex web of interrelationships between affordances, and how learning in online spaces is not simply a matter of taking advantage of a single affordance, but negotiating the implications of acting (or not acting) on a set of affordances. Exploring the tensions between affordances is key to understanding how learning takes place in online environments, because it is these tensions that the students must negotiate in order to learn.

Having considered the dynamic web of affordances that the students navigate, the research then turned to explore how learning takes place in this online collaborative environment. Learning was defined as actionable knowledge that emerges and is assimilated through meaning making connections, between human and non-human nodes of an open network, by

autonomous and self-organising agents, that is stored internally within individuals and externally within the network. The analysis of student learning in Facebook showed that learning was made up of two main aspects. The first is an opening of actant connections through student posts and the second is the solidifying of actant connections through replies. Learning was shown to take place through dialogue (dialogical and dialectical) where there is a progressive growth in understanding that is tied to the process and not the artefact. Students, acting on various affordances such as express-able, expose-able, etc. opened the dialogue space. However the pursuant interaction around the post, solidifying the conversation, determined the visibility and activity of the conversation.

Posts were shown to solidify by attracting conversational density through activity related to the post. This process was related to the posters investment in the original post as exhibited through their framing comment and/or question for the content of the post. This augmentation of the content caused the post itself to gain a density that attracted comments and precipitated the process of increased activity and resultant densification of the thread.

As with the findings on affordances, it was argued that learning takes place through an interplay of opening and solidifying, as represented by the posts, comments, Likes, etc. in Facebook. It is in the tensions between opening and solidifying that learning is enacted through dialogic and dialectic, through content creation and question asking.

Having considered how learning takes place through an opening and solidifying process the research then considered why students learn in this way within Facebook. A constantly emerging theme has been that of connection. This was precipitated by the Latourian-based affordance perspective that foregrounds “between” and was seen in the competing network of related affordances. Likewise when considering why the students learn in the way they do, it became apparent that learning itself does not operate in isolation but it too is in relation with another discourse, the power discourse. The learning discourse and the power discourse are interconnected and exist at tension both within themselves and between themselves.

The learning discourse was composed of an interplay between vulnerability and validation. On the one side students make themselves vulnerable by posting, commenting or acting

within the Facebook environment. On the other side this is reciprocated (or not) by some form of validation through comments and Likes. The interplay between vulnerability and validation underpins the conversation-centric approach of learning within Facebook. The interplay between vulnerability and validation is both supported by the environment, and key to the use of Facebook as a learning space, and the paradigmatic shifts that take place. Three paradigmatic shifts that arose were the shift from correct content to correcting content, from artefact to conversation, and from prospective to retrospective sense.

The shift from correct content to correcting content mirrors the shifts taking place in other Web 2.0 environments, where content is continually being negotiated by participants. This is a departure from traditional online environments and traditional learning models, where correct content and an expert, predicate the learning experience. Facebook demonstrated a correcting approach where the interplay created in dialogue evolved the content.

The shift from artefact to conversation is demonstrated by the move from a content-centric view of learning that has dominated learning environments since the invention of the printing press, to a conversation-centric view of learning where learning is continually in process. This resulted in a move to the use of questions and answers as a replacement of storage and retrieval, and demonstrated the importance of just-in-time knowledge consumption in this form of learning.

The shift from prospective to retrospective was demonstrated both in the move from correct to correcting (as discussed above) and in the power discourse (discussed below). Unlike traditional learning environments where *a priori* correct content or *a priori* support for decisions is needed, the Facebook environment operated retrospectively both in terms of learning and power.

However the learning discourse itself was subject to the overarching power discourse that not only shapes how decisions are made but whose “voice” is heard in the environment. The affordances of conceal-able and expose-able sit at tension as students seek to have a voice, but are equally aware of the apparent judgment this exposure can lead to. While attempts to continue with both a traditional autocratic leadership and an online democratic approach

floundered, students adopted a homeocratic approach. This self-regulating approach saw students enacting decisions, sometimes unilaterally and then seeking retrospective sanction. This homeocratic decision making approach mirrors the perpetual beta approach of Web 2.0 environments where small changes are implemented that can later be retracted if they are resisted, or remain, if they are validated or ignored.

Learning in Facebook is represented by this interplay between the learning discourse and power discourse. Learning, in the connectivist sense of networked engagement takes place through the process of actant connections. Learning in Facebook takes place through actants negotiating multiple affordances within both the learning and power discourses where both the learning and power discourses often only make sense retrospectively. Where learning is about correcting not correct, conversation not content, and compromise not control.

These shifts represent yet another iteration in the evolution of learning as students respond to the affordances of new learning spaces. All “technologies” afford opportunities for learning, whether it is the blackboard, the book, the computer, or the social network. Each so-called technology brings with it a set of affordances that both the student and lecturer must navigate. Yet in addition to these affordances are the potentially greater challenges that new technologies bring to our paradigms of learning. Just as the book would have challenged a conversational approach to learning, so now social networks challenge the artefactual approach to learning. Yet with each new paradigm shift comes new opportunities to explore both the old and the new, and to reconsider how students can best be served when learning in a new environment.

9.3 Limitations

Learning about learning, an undertaking that has been explored for millennia is by the very recursive nature of the undertaking, limited. Any exploration of learning must not only take into account the massive contributions of those who have come before but also the disruptions of new advances. This research has considered a single instantiation (Honours class) of one element (Facebook page) of one such development (Facebook) amongst many others (Web 2.0 etc.). This in itself highlights the limitations of this research.

Secondly, the content (Computer Mediated Communication) and the medium (Facebook) were aligned. Where this potentially removed issues of technophobia, or discomfort with the environment, it limited insights into how a non-technology content course would unfold in this computer-mediated environment.

Thirdly, as discussed under the research methodology chapter (and further under Reflexions) is the paradoxical positionality of being the lecturer, the researcher, and a participant, while students too assumed roles of “lecturer”, researcher and participant. Being able to separate these perspectives was not always possible, and the implications of an emic perspective may have both impacted my “manipulation” of the students and objectivity in exploring their perspectives.

Lastly, an environment such as Facebook (in addition to Focus Groups, Reflective Journals, etc.) generates seemingly endless texts for examination. Navigating this dense data source necessitates selecting only a few of the potentially hundreds of themes to explore. This limits the conclusions to what was explored but leaves open the possibility of many more, and potentially richer insights that remain, as yet, undiscovered.

9.4 Conclusion

This is not the end, for then I am no longer between, no longer at tension, no longer learning. I am on a journey, a place marked by many “betweens”, places that are not places of rest, but places of movement. Places where decisions are constantly made, where lessons are always being learned.

While this research has explored learning in Facebook, Facebook itself merely represents a single instantiation of a rapidly evolving series of technologies. Its impact on how students learn is only one ripple of many, both shaping and providing insight into new possibilities. There is nothing “special” about Facebook, besides its current status as the largest single site on the Internet. Yet this fact requires that some attention be given to it, as we try and determine how this next iteration of technology is impacting the way our students learn.

However, while Facebook currently reigns supreme, as the largest single site on the Internet, like all kings, its rule cannot last forever. It too, like those before it, will wane as new kings arise, that further shape the digital landscape upon which learning is increasingly enacted. Yet at this moment, in a world where Facebook reigns supreme, there is a message being inscribed by over a billion hands, a message that cannot be lightly ignored. A message that once more a new technology is affording new opportunities for learning, but at the same time new tensions, and new unknowns.

“Suddenly the fingers of a human hand appeared and wrote on the wall...” (Daniel 5:5)

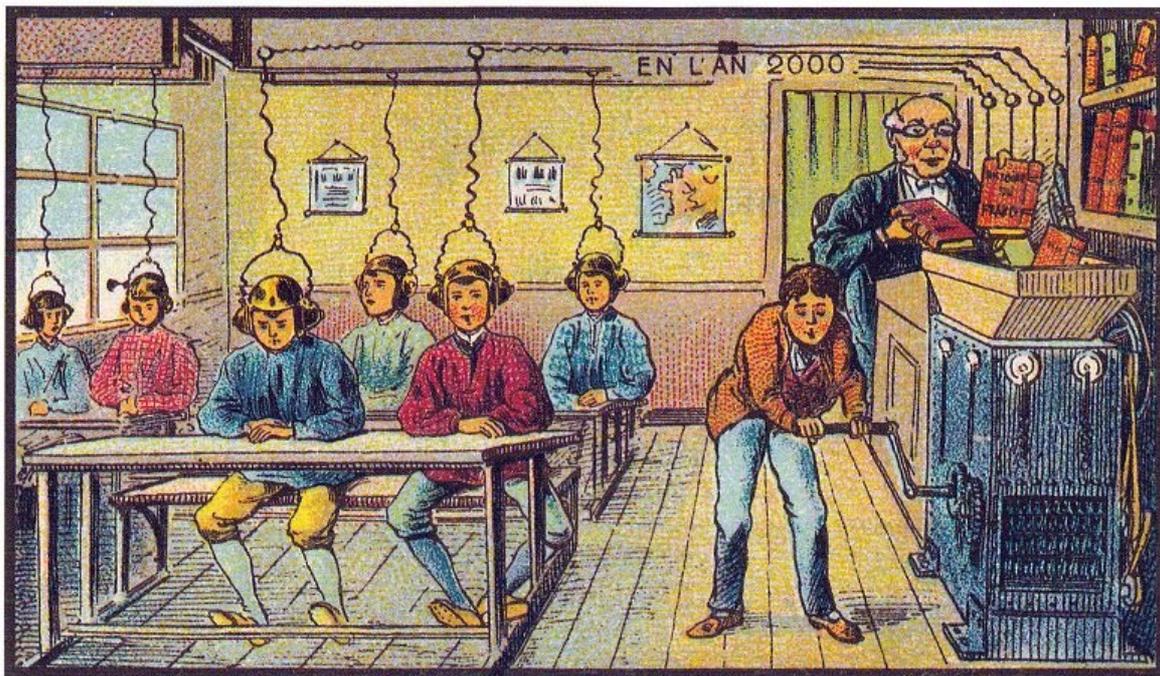
10 Epilogue – Between to Beyond

“The most beautiful thing we can experience is the mysterious. It is the source of all true art and science. He to whom the emotion is a stranger, who can no longer pause to wonder and stand wrapped in awe, is as good as dead —his eyes are closed.” - Albert Einstein

10.1 Introduction

This research has found that moving from an offline space such as a lecture theatre to an online discussion-based space like Facebook brings with it, not just different affordances, but shifts in how learning takes place. These shifts in learning from correct to correcting, from content to conversation, and from control to co-operation do not only require a paradigmatic adjustment from students and lecturers alike, but they also resist a clear reductive mapping of how learning takes place. It resists order, categorisation, and control but rather seems to call for a reframing of conceptions of learning around disorder, fuzziness, and chaos.

All of this tends to suggest something rather startling, that learning in these emergent online environments is defined by chaos rather than order, by principles of uncertainty rather than laws of determinism. In this epilogue I intend to “push beyond” as I attempt to theorise what future directions these findings are potentially signalling for learning. Yet, in doing this I am mindful of the following image (Figure 59) that I came across early on in this research.



At School

Figure 59: *Future School, France 1901*, (Wikipedia, 2013a)

This is an image from 1901, which I suppose can be called a “vision of e-learning”, depicts how learning was predicted to take place in the year 2000. Not only does this image portray a somewhat mechanistic, view of learning, it is also wrong. Learning, thankfully, did not turn out like this where learning is reduced to the mindless transmission of content via electronic devices. Yet hindsight is a perfect science, and so I too am aware that what I share here is also based on my imperfect, time-constrained, paradigm-constrained perspectives, and in the near future, I too may be laughed at. Yet, if the creator of this image, or any student for that matter, eschews vulnerability, then there can be no learning.

10.2 The edge of chaos

The Newtonian view of the universe has pervaded, not only science, but education, philosophy and many other realms over the past 300 years. As Doll (2012) says it has become the “central concept of science...its guiding principle” (p. 15). Yet this deterministic, mechanistic, linear view, while challenged in mathematics (chaos theory) and physics (quantum physics) has nonetheless remained the dominant perspective within educational

theory and practice. Guided by Newton's central tenet of cause and effect, the certainty of determinism predicates most modern perspectives of learning.

Yet as quantum physics was to science it seems that Web 2.0 technology may be to education. As the seemingly immovable walls of education's Jericho begin to sway to nothing more than the sound of social networks, wikis, and microblogs, resisting the challenge is becoming harder and harder to ignore.

Some time back Doll (1986) said, "the teacher must intentionally cause enough chaos to motivate the student to reorganise" (p. 15). However, maybe the question should now be "Has technology, intentionally or otherwise, caused enough chaos to motivate students and somewhat reluctant lecturers to reorganise?"

Shifting from the realm of the ordered, understood, controlled, to the realm of the unordered, confusing and *laissez faire* is challenging to lecturer and (to a lesser extent) student alike. Higher education has been forged for centuries in the ordered, controlled sanctums of academia. It is no trivial thing to venture into what is not only a new space, but also a new approach, and most disconcertingly, a new paradigm located on the very edge of chaos.

Learning in Facebook follows no script, lacks any overarching control, allows subversion of content, concealment of identity, the right of no reply and the intrusion of the "other". Yet at the same time there is a homeostatic order, there is validation of content, there are actant connections wherein knowledge is grown. Facebook provides a learning environment where a weave of order and chaos seem to naturally coexist. This uncomfortable space where order and chaos meet is where learning takes place in the new digital realm. Or maybe our discomfit stems from, as Robinson (2009) argued, another example of our Newtonian forged predilection for classification, as we neatly separate order and chaos like pinning butterflies and beetles in different boxes. Maybe what we are seeing here is not the clear distinction between order and chaos but a new space, on the edge of chaos where there is a new opportunity to take learning forward.

Learning based on artefact lends itself to order, as artefacts are categorised, stored and shared. However learning based on conversation tends to respond to the seemingly random flows of time, sentiment, interest, engagement, and so on. Unlike its offline counterpart, the lecture theatre, where all students are hearing the same thing at the same time, online environments like Facebook create a weave of various conversations at the same time. “As students work on these various texts, the aim is not for all to be on the same page at the same time but, contrarily, for groups within the web to be on different pages, in different texts, at the same time” (Doll, 2012, p. 25). Yet in Facebook it is more than this; the students are on the same page and different pages, using the same text and different texts, at the same time and at different times, in groups and alone. Here learning is a chaos of connections, a chaos of conversations.

Yet this chaotic learning is not learning without order, where chaos is the opposite of order, but rather learning where patterns and paths cannot be predetermined. Where learning cannot be reduced to simple practices (behaviourism) or to models (cognitivism) or motivations (humanism) or activities (constructivism). Rather learning takes place in an emergent sense, where order, when it exists, is retrospective, where correcting is ongoing and not a state. Learning is a process, a process born of connections between actants, human and non-human. A process that may unfold in a plethora of ways, where each path creates a multiplicity of opportunities for new connections, and new learning encounters.

“One striking aspect of the difference between classical and quantum physics is that whereas classical mechanics presupposes that exact simultaneous values can be assigned to all physical quantities, quantum mechanics denies this possibility” (Hilgevoord & Uffink, 2012 para. 2). This is most classically demonstrated by the Heisenberg uncertainty principle. This states that the position and momentum of a particle cannot be known at the same time. This is not a statement about the observer and inaccuracies of measurement but about the relativism of matter (Kumar, Kiranagi, & Bagewadi, 2012). As we explore the edge of chaos, where the position and momentum of learning seemingly cannot be apprehended at the same time, is this signalling the relativism of learning?

Rather than fearing the seeming chaos of uncertainty, the seeming chaos of not knowing the position and momentum of learning, we should be, as suggested in this research, making ourselves vulnerable to new spaces, new approaches, and possibly even new paradigms. A paradigm where learning is based on a reality of chaos and not of ordered determinism, where as Winterson (2013) mused “in the space between chaos and shape there was another chance” (p. 7).

10.3 Paradox of learning

Doll (2012) borrowed the words of Milan Kundera to describe learning as the “fascinating imaginative realm, born of the echo of God’s laughter, where no one owns the truth, and everyone has the right to be understood.” Such is the space where learning is enacted in these emergent online learning spaces.

What is the connection between the actants in this space? How do students impact the lecturer? How does the lecturer impact the students? How does the environment impact the student?...and on and on the questions go as they weave into a complex pattern of tensions and attractions, a complex weave of words. These new spaces are a poetry of learning where rules are broken only to be wondered at when they are seen to have simply been re-imagined, where content is discarded only to be rediscovered in conversation. This is not a place of disorder, but a place where “order emerges from interactions having just the ‘right amount’ of tension or difference or imbalance among the elements interacting” (Doll, 2012, p. 25). This is a place of paradoxes where uncertainty causes certainty, where disorder causes order, where indecisiveness causes action, where vulnerability causes validation. It’s in these questions, these tensions, these paradoxes, these defining tenets of online learning, that a sense-able chaos emerges, a chaos that retrospectively makes sense, yet prospectively defies sense, order, and determinism.

While behaviourism, cognitivism, humanism, constructivism, and connectivism provide theories for understanding learning, this emergent sense-able chaotic space seems to signal the need for another perspective, or a meta-theory. A meta-theory that both embraces the tenets of the former theories yet at the same time sees them in a form of quantum

superposition with one another, where this superposition sees learning existing in all these theoretical states simultaneously. Maybe it is for this reason that the principles of all these learning theories continue to hold true, however when one is invoked as the single defining theory they are resisted by the superpositioning of competing theories, also equally correct at the same time. This again echoes with the Heisenberg paradox where it seems impossible to hold the tenets of two or more of these theories at the same time. While individually they have veracity (or partial veracity) together they are incompatible (or partially so).

Understanding learning is a unique undertaking amongst the multiplicity of areas of research, for the very process of attempting to understand learning is itself a process of learning. This therefore implies that our theories of learning are themselves subject to a theory of learning, for these theories themselves are also an enactment of learning. Yet attempting to charter a course to a meta-theory of learning is fraught with even more challenges as we move even further into the space between the observable and the theoretical, the empirical and the imaginable, order and chaos. However as Winterson (2013) suggests, in this space may exist another chance, a chance to see afresh, to see with new perspectives, where the old is not discarded just because it is old, but rather is reimagined and reconceptualised. This meta-theory is a form of chaotic relativism, where learning theories exist within the uncertain cloud of possibilities, where chaos and uncertainty are the underlying principles that give rise to order and clarity, the very goals of learning itself.

Web 2.0 developments may well represent the quantum inflection for learning as it challenges many of our categorised, ordered and deterministic perspectives of learning. This research in Facebook, which represents just one instantiation of Web 2.0, one that by size alone has had the biggest impact on social media, has brought to light perspectives that appear contrary to traditional offline understandings of learning. These findings point to the existence of learning principles founded in instability and uncertainty, principles best understood relatively rather than independently. These findings signal the need for the exploration of a meta-theory of learning, a theory here termed Chaotic Relativism.

10.4 Chaotic Relativism

Continuing the metaphorical quantum assumption, chaotic relativism is a theory founded on chaos; instability and uncertainty, and where relativism, the position and momentum of learning's principles, are apprehended independently yet together. The principles (particles) that orbit the cloudy space of chaotic relativism are likely many, yet all are founded upon the aforementioned chaos and relativism. This research has identified two examples, of potentially many more, of chaotic relativism.

The first example of chaotic relativism is conversation and correcting, where conversation represents the position and correcting the momentum, whereby both cannot be apprehended simultaneously. In collaborative online spaces such as Facebook, conversation is where learning is opened, where content is created or curated, where vulnerability is the genesis of content. However while conversation is the positioning of content, correcting is the momentum. Correcting is where content is validated, where correcting is a process while being correct, if achieved, is retrospective. Both conversation and correcting are in essence part of the same "particle" yet in terms of chaotic relativism's uncertainty principle they are not simultaneously apprehendable. Correcting brings momentum to conversation but this momentum can mute conversation itself, yet it is in conversation, the positioning of thought, where correcting exists. As was discussed previously, becoming vulnerable is necessary for validation, yet validation can impede vulnerability. This marks one example of chaotic relativism.

The second example of chaotic relativism arising from the exploration of learning in Facebook is choice and controlling, where choice represents the position and controlling represents the momentum. In collaborative online spaces such as Facebook, choice is where learning is empowered, where decisions regarding pace, content, connections, etc. are made. However while choice is the freedom to take a position, controlling is the momentum through which it is enacted. Controlling is where learning is directed and negotiated, where "power" is owned but not always enacted, where content and direction are advanced homeocratically. Both choice and controlling are also in essence part of the same "particle", yet as with conversation and correcting, they too are not simultaneously apprehendable. Controlling gives momentum to choice but this momentum impedes choice itself, yet it is because there is

choice that controlling has relevance. Once again this marks another example of chaotic relativism.

These are just two of potentially many examples of chaotic relativism. While these have arisen from this study, and the opportunities provided by the burgeoning new media of social networks, the indication is that many more examples could be explored as both the old and the new are considered from an alternative perspective.

Yet a meta-theory based on an alternative paradigm, which eschews Newtonian order and determinability, is itself in danger of reverting back to these very principles in attempting to list, and define the principles upon which it is founded. These principles are like particles in motion, whereby attempts to capture and define them invokes a Heisenbergian uncertainty. However grasping these principles, even if only chaotically, provides a glimpse into the opportunities of a new chaotic learning relativism.

10.5 Future - Connecting beyond the dots

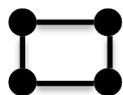
Casey and Evans (2011) in their consideration of online social networks conclude with a section entitled “Connecting the dots” no doubt an allusion to Bertalanffy (Zenko, Rosi, Mulej, Mlakar, & Mulej, 2013) where he focused not on the “dots” but on the connections between the dots. As Doll (2012) explains, Bertalanffy moved from four unconnected dots;



to a linear sequence of connected dots;



to a square arrangement of connected dots;

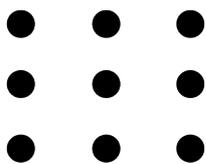


He used this arrangement of connections to explain how we can know not only the elements of a system but the relationships between the elements. He thereby defines a system as the interrelations or connections between elements.

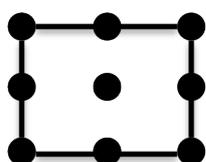
This research has identified the importance of connections, the connections between actants, the connections between principles of chaotic relativism, the connections between the past and the future, etc. Learning, it was argued, is defined by the interrelations between the elements. Once we see the dots connected, we see the relationships; we see the emergence of shapes.

However this emergent learning with its affordances to extend and expand and expose, with its chaotic mix of order and disorder, with its interplay between attraction and repulsion, with the mix of learning and power, is not just about the connections between the dots, but the possibilities beyond the dots.

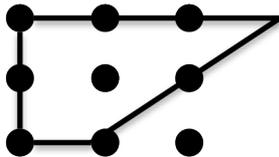
The classic nine dots topographical puzzle illustrates this opportunity. The puzzle requires a person to connect the following arrangement of nine dots with four straight lines while not lifting the pencil from the paper.



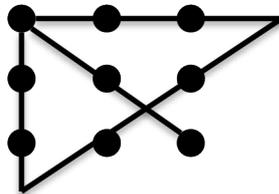
However this puzzle is not solvable within the structure of traditional systems, within self-imposed constraints of perceived boundaries as depicted below.



The solution requires a person to see what is not there, the opportunity beyond the dots. It requires us to move beyond the self-imagined “walls” of the nine dots. Seeing this, a person suddenly sees the opportunity to solve the problem, yet even equipped with this extended perspective many I’ve shared this with are still unable to solve the puzzle as illustrated below.



Even when we know we are operating within our own self-imposed boundaries, to shift from a paradigm of confinement to one of expansiveness is not easy, even when we are self-aware. Solving the problem requires the person to continue “thinking out the box” and pushing to move beyond the dots, and thereby the seeming impossible can be achieved, the nine dots can be joined by four straight lines.



Maybe future directions in our exploration in learning need to move beyond the dots, beyond our current paradigms, beyond our self-imposed boundaries, and into the undefined and largely uncharted empty space beyond.

This nine dot puzzle can also be solved with a single thin straight line, without lifting the pen. Yet once more we need to shift our perspective, challenge our paradigms and question the very orientation on which we perceive the puzzle. The solution requires a more fundamental shift, where we not only push beyond the self imposed boundaries of the dots’ virtual wall, but beyond the very stratum on which we represent them. For if these nine dots are drawn on the side of a cylinder, a single straight line circumventing the cylinder will join all nine dots (or more).

This opens up additional paradigmatic shifts as we move from the two-dimensional to the three-dimensional (and beyond?). What rich opportunities lie in exploring learning once we shift from the two-dimensional stratum upon which it has been traditionally inscribed? What opportunities lie in exploring new “surfaces” upon which learning takes place? For on these new “surfaces” may exist new opportunities, new paradigms, and potentially new theories.

While learning is enacted in the “between” the opportunities to explore learning lie not only in the “between” but in the “beyond”.

“This is my journey so far...”

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Appendix A. Ethical Clearance Approval



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Ximbap@ukzn.ac.za

25 November 2011

Mr C Blewett (841841906)
Faculty of Education

Dear Mr Blewett

PROTOCOL REFERENCE NUMBER: HSS/1249/011D
PROJECT TITLE: Student design and use of a Facebook Learning Space

EXPEDITED APPROVAL

I wish to inform you that your application has been granted Full Approval through an expedited review process:

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number. PLEASE NOTE: Research data should be securely stored in the school/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours faithfully



.....
Professor Steven Collings (Chair)
Humanities & Social Sciences Research Ethics Committee

Appendix B. CMC Module Guide



UNIVERSITY OF KWAZULU-NATAL
Westville Campus, PMB Campus, Virtual Campus

INFORMATION SYSTEMS & TECHNOLOGY HONOURS
MODULE GUIDE – Computer Mediated Communication

2012

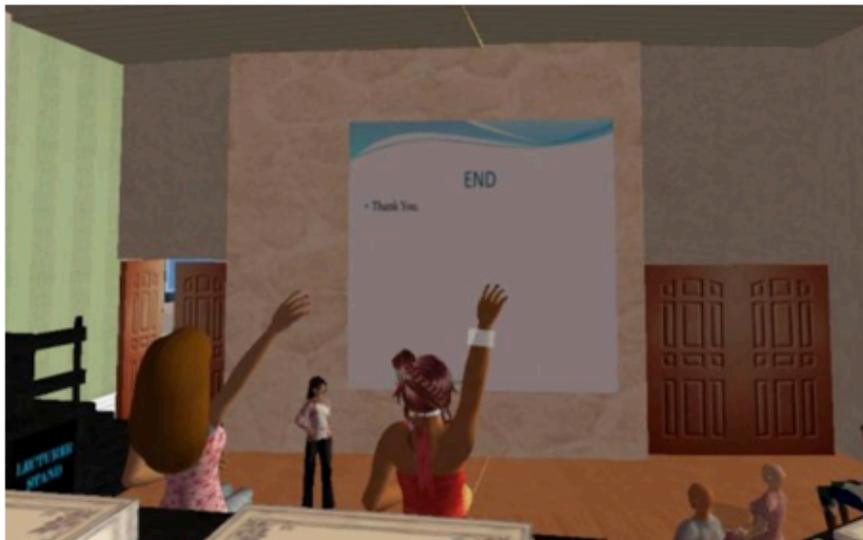
MODULE CO-ORDINATORS
Craig Blewett & Rose Quilling

WELCOME

Computer Mediated Communication is any form of communication between people where they interact via digital media through the Internet or other network connection. Virtual Reality Environments provide a very rich form of CMC in terms of providing asynchronous, high immersion and high engagement environments. As such much research has gone into the use of, and implications of, VR environments in education, business and entertainment.

The biggest developments, challenges and opportunities within the area of CMC that are being witnessed are in the phenomenon that has come to be known as Web 2.0. "Web 2.0 is the term given to describe a second generation of the World Wide Web that is focused on the ability for people to collaborate and share information online. Web 2.0 basically refers to the transition from static HTML Web pages to a more dynamic Web that is more organized and is based on serving Web applications to users. Other improved functionality of Web 2.0 includes open communication with an emphasis on Web-based communities of users, and more open sharing of information."¹

According to Gartner ² "Web 2.0 technologies and business models dominate emerging technologies." As such the major focus of the CMC module will be on the technologies and business models that are emerging with the Web 2.0 environment.



¹ http://www.webopedia.com/TERM/W/Web_2_point_0.html

² <http://www.gartner.com/it/page.jsp?id=495475>

TITLE OF MODULE

Computer Mediated Communication

MODULE CODE

ISTN730 and ISTN430

CREDIT VALUE OF THE MODULE

16 credit points

PREREQUISITES FOR THIS MODULE

Bachelor's Degree with appropriate IS&T majors, and acceptance on to the Honours Programme

PURPOSE OF THE MODULE

The purpose of this module is to provide students with the theoretical and practical know how to use Web 2.0 technologies to evaluate and develop Web 2.0 business models as applied to business, education and entertainment.

STATEMENT OF SPECIFIC LEARNING OUTCOMES

At the completion of this module students will:

- understand what CMC is and be able to discuss the principles that underpin CMC
- be able to critically examine the implications and issues that arise from utilising CMC
- understand what Web 2.0 is, its difference to Web 1.0, how it relates to CMC, and its application
- be able to develop and discuss a Web 2.0 framework
- understand the various Web 2.0 business models and critically discuss the role of Web 2.0 for business and education in particular
- be able to discuss and implement a CMC system for either a business or an education environment
- be able to discuss the future trends emerging in CMC

LIST OF CONTENT TOPICS

- Principles of CMC & Introduction to Web 2.0
- Communication and engagement in Social Networks
- Online teams and collaborative tools
- Virtual Worlds – education, business, entertainment
- Theoretical review of Second Life
- Design and use of spaces in Second Life

TYPES OF DELIVERY AND NOTIONAL STUDY HOURS

Types of Delivery

Students' learning experience for this module will include

- Preparation and participation in lectures
- Preparation and participation in tutorials and meetings, both in a face-to-face context as well as virtually
- Preparation and participation in assignments and other online tasks
- Self-directed study

Notional Study Hours

The anticipated number of hours that a student can expect to spend on this module is 160 notional study hours. This is made up of approximately:

- 20 hours of Bootcamp/ physical & virtual lectures
- 24 hours of tutorials (physical and/or virtual)
- 1 hour of virtual field trips
- 45 hours of resource-based virtual environment skill development
- 24 hours of self directed study
- 44 hours assignments (written & oral presentations)
- 5 hours tests (preparation is supplemented by tutorial time)



DULY PERFORMED (DP) CERTIFICATE REQUIREMENTS

There are no DP requirements for this module.

ASSESSMENT

This course is based on a continuous assessment method. As such there is no final exam, but rather students are required to complete a variety of assignments, virtual world tasks and tests.

Mark Breakdown

The final module mark is calculated using the following weighting factors

Part	Week	Dates	Description	% Mark Contribution
1	1	6 Feb – 10 Feb	Introduction to CMC	
	2	13 Feb – 17 Feb	Social Networks and Learning	
	3	20 Feb – 24 Feb	Exploring Web 2.0	
	4	27 Feb – 2 Mar	Evaluation of Web 2.0	10%
	5	5 Mar – 9 Mar	Web 2.0 Review and Mock ePanels	
	6	12 Mar – 16 Mar	Panel Discussions	15%
2	7	19 Mar – 23 Mar	VW issues	
	8	28 Mar – 30 Mar	VW Theoretical Review Report	20%
Vac (31 March – 9 April)				
	9	10 Apr – 12 Apr	SL Build Tender	
	10	16 Apr – 20 Apr	SL Tenders	15%
3	11	23 Apr – 26 Apr	VW Build	
	12	2 May – 4 May	VW Build	
	13	7 May – 11 May	VW Build	
	14	14 May – 18 May	VW Presentation	30%
			Participation Mark (During Course)*	10%

* Participation is based on your continual meeting of deadlines and participating in required tasks. Note that not all weeks and tasks are weighted equally.

Method of Assessment & Contribution

As mentioned above, the assessment takes place continuously through the module. The assessment is based on the student's ability to complete the various tasks set, Assignments, Virtual Worlds and Tests.



10% of your course mark comes from Participation. This is measured in terms of your participation in the course (through blogs, forums etc). This will be monitored and assigned a mark. Additionally, for group work there will also be a "percentage contribution" grading system. This is based on your level of involvement in the group (based against a 100% participation norm). This percentage of the group assessment will then serve as the student's mark e.g. student's performing 50% of the expected work (as adjudged by your group) will only receive 50% of the mark received by the group. If the group achieved 60% they will thus only be credited with a 30% mark. In all activities 50% indicates a pass.

Note. There is no exam for this module. Should you score a mark of between 40% and 49% for any assessment you will be given the opportunity to resubmit your work. The resubmission will only be awarded a maximum mark of 50%. There are no resubmissions for marks below 40%.

Computer Mediated Communication Credit

A credit will be granted for Computer Mediated Communication to students who have a final module mark of at least 50%.

LECTURES

The times for both the lectures, tutorials, virtual lectures and virtual tutorials will be made available once they are finalised. As this module is primarily about virtual environments, students should expect to spend most of their learning experience in these virtual environments. All communication, submissions etc will take place through the virtual environment. Details of how to accomplish this will be made available at the commencement of the module.

Activities are ~~scaffolded~~ (or build on each other) and thus participation (by stipulated deadlines) is **compulsory**.

PRESCRIBED & RECOMMENDED TEXTS

There is no prescribed text as students are expected to make use of a wide range of textbooks and online material that is available on this topic. You will be given a list of useful resources that will help you initiate your learning process.

COMMUNICATION MEDIA

Outside of lecture periods and individual consultations, communications between lecturers and students will take place electronically. Students are advised to contact the lecturers through their email;

- Craig Blewett – blewett@ukzn.ac.za - [Cee Beattie](#) (SL Name)
- Rose Quilling – quillingr@ukzn.ac.za - [Resomyra Felwitch](#) (SL Name)
- Zahra Bulbulia – bulbulia@ukzn.ac.za - [Zahra Fallen](#) (SL Name)

Facebook will be used as the primary communication medium. More information will be provided on this during the course.

Please note that you will be provided special Internet access privileges (Facebook, Twitter, You Tube etc) while on this module. You are also however warned that this is for academic purposes and should you be seen to be abusing the privilege in any way, you will be held personally accountable. You are also warned that removal of these privileges may make it impossible to complete the module successfully. The university has auditing software in place which allows them to determine your online activities.

During the semester it is necessary to ensure you check communications at LEAST twice a day. This requirement is not enforced over weekends/ holidays. **Team members may however negotiate their own rules during team activities.**

Except in the case of weekends and holidays, a period of 24 hours will be regarded as sufficient time for students to have acquainted themselves with any emails or notices posted on the Social Network Learning Environment.



Appendix C. CMC Assessment

CMC Part 1 - Assessment 1&2 (25%) Topic 1: CMC and Web2.0 Week 6: 12 March - 16 March 2012



Topic

Computer mediated communication and Web2.0
Application of knowledge to real life queries, concerns,
situations and business contexts

Learning Objectives

While the detailed objectives were provided in Week 1 of this topic; this week you will explore the knowledge you have created over the past weeks and contextualize and cement it into your personal “body of knowledge” in a meaningful way.

Main Tasks for this Week

This week brings to a conclusion (and culmination) Part 1 of the CMC module. There are two parts to the assessment for Part 1. The first is the Evaluation of Web 2.0 "report" - based on Activity 2&3 (10%) and the second is the Panel Discussion (15%).

Evaluation of Web 2.0 Report - GROUP (10%)

During Activity 2 you prepared a map overview of Web 2.0 and during Activity 3 you prepared a presentation about your two specialty areas, and included this on a page where questions could be asked about your area. You are now required to also include the Web 2.0 Map on this page and you are also allowed to make any final updates/improvements to your page and/or presentation. You need not include information on your third specialty area. Once you have done this you must post a link to where your GROUP Web 2.0 report can be found (see details and other item also required for this email below). **This must be done by no later than 5pm on Friday 16 March 2012.**

Panel Assessment - INDIVIDUAL (15%)

The second part of Part 1's assessment is the Panel Discussion. The basic scenario is that you will be appearing, as a specialist panel member, in a simulated talk show discussing issues such as Web2.0, social networking, and virtual environments.

You are reminded that this session could be recorded and if so, should be considered to exist in the public domain (i.e. freely accessible).

1. You have been assigned a “specialist area” and an appropriate panel discussion (see below). While you are seen as the representative from your specialist area, and should speak as representing the company, you are expected to be familiar with all other Web 2.0 areas. This means you could be asked questions or opinions on other Web 2.0 companies/news/technologies.
2. All students registered for CMC are required to be present for the COMPLETE session, and will serve as members of the “audience” for those panels they do not serve on. Marks are allocated for this (see below).

3. You have had the opportunity to experience the mock iPanel, and you should have used these questions to further help guide your preparation.
4. Now that you have been given a specific focus area (notwithstanding point 1 above), you are expected to have a deep knowledge of your area.
5. Any cards or notes you intend to use during the panel discussion should be
 - a. Limited in number
 - b. discreet
 - c. And limited to only a few key facts e.g. statistics or perhaps a quote or 2.
6. Please ensure you arrive in good time.
7. Each panel session will be assigned a maximum of 25 mins. There will be an extra 10 minutes for the hosts to ask questions, to follow-up on comments made by the panel, as well as to allow for questions from the audience.
8. While in general our sessions do not have a dress-code (other than that you bring your brain along 😊), you are expected to look suitably neat on this occasion (smart casual).

The details of which Panel you have been assigned to are below;

Westville, Thursday 15 March 2012 (Elephant Room)

Panel Discussion 1 – 11:00-11:35

Social networking

- Expert1: Facebook (Ebrahim)
- Expert2: Twitter (Nkosikhona)
- Expert3: Netvibes (Thabo)
- Expert4: Wordpress (Ntombifuthi)
- Expert5: LinkedIn (Mesuli)

Panel Discussion 2 – 11:40-12:15

Web 2.0 and Education

- Expert1: Facebook (Kaahsifa)
- Expert2: Edmodo (Samukelisiwe)
- Expert3: Wordpress (Akshay)
- Expert4: Digg (Nigel)
- Expert5: Twitter (Siyabonga)

Panel Discussion 3 – 12:20-12:55

Web2.0 and Society

- Expert1: Zoho (Nerin)
- Expert2: LinkedIn (Nkululeko)
- Expert3: Yelp (Renell)
- Expert4: Bidorbuy (Teddy)
- Expert5: Flickr (Shiren)

Panel Discussion 4 – 1:00-1:35

Web2.0 and Business

- Expert1: Zoho (Brina)
- Expert2: Dropbox (Sizwe)
- Expert3: Netvibes (Mpumulelo)
- Expert4: Bidorbuy (Valencia)
- Expert5: LinkedIn (Sabelo)

Panel Discussion 5 – 1:40-2:15

Web2.0 and the Future

- Expert1: Edmodo (Bhekani)
- Expert2: Dropbox (Sakhile)
- Expert3: Wordpress (Tehseena)
- Expert4: Yelp (Ravi)
- Expert5: Flickr (Avrishka)
- Expert6: Digg (Riyaadh)

PMB, Friday 16 March 2012 (G36)

Panel Discussion 1 –1:30-2:05

Social networking

- Expert1: Youtube (Ncamiso)
- Expert2: Pandora (Sindisiwe)
- Expert3: Gumtree (Phomolo)
- Expert4: Wikipedia (Shanton)
- Expert5: Tumblr (Relebohile)
- Expert6: Google+ (Ishkar)

Panel Discussion 5 – 2:10-2:45

Web2.0 and the Future

- Expert1: Youtube (Manshil)
- Expert2: Pandora (Nosipho)
- Expert3: Gumtree (Laversen)
- Expert4: Wikipedia (Violet)
- Expert5: Tumblr (Thuthukile)
- Expert6: Google+ (Vela)

If you have not been assigned a specialist area, or are aware of any problems which could arise from these arrangements please mail us urgently.

Panel Assessment Details

This assessment will count for 15% of the overall module mark. This assessment will consist of 3 parts:

1. Your Press Release - 20%
2. Panel Discussion - 70%
3. Question Asked - 10%

The Press Release

You are required to write a short (less than 250 words) "press release" about your company. You should imagine that you have been asked to write this about the company you are representing. Be informative, factual, but interesting. This is a press release so there are no photos - just words. This must be completed and emailed to Craig (craigblewett@gmail.com) TOGETHER with the link to your Group Web 2.0 Report (see above) on or before 5pm on Friday 16 March 2012. USE THE FOLLOWING SUBJECT LINE FOR YOUR EMAIL - "CMC2012-ASS-PART1"

Panel Discussion

You have already experienced the flavour of the questions you will be getting. What is important is to answer the question and not to make things up. If you do not hear the question clearly you can ask for it to be repeated, but be careful of using this because you don't understand the question. Keep your answers to the point and be prepared to be interrupted and challenged. The time/details of your panel are listed above.

Question Asked

Every person is expected to ask one question once during the panel sessions. You are required to;

- write your question down
- write the name of the panelist/company you asked
- give a mark out of 10 for the panelists answer, with a brief reason (5 lines or less) as to why you gave that mark
- write your name and student number on the paper
- hand this in immediately after the panel session when your question is asked

You will be given a mark based on the quality of the question you ask and your review of their answer. The question must be relevant to the discussion - so simply preparing a generic question beforehand will not earn much marks. Listen carefully and ask a relevant question.

Notional Study Hours (13 hrs)

As a guideline the notional study hours should roughly equate to:

- 4 hrs complete Evaluation of Web 2.0 report
- 4 hrs reading in preparation for the panel discussion.
- 3 hrs panel discussion
- 2 hrs preparation of written submission (press release). This may involve additional reading as well as the actual writing.

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Appendix D. Initial List of Affordances from Focus Group

Focus Group Perceived Affordances	Conole and Dyke Affordances (Conole & Dyke, 2004b)	McLoughlin & Lee Affordances (McLoughlin & Lee, 2007)
Accessibility	Accessibility - easy access to vast amounts of information	-----
	Speed of change - immediate access to changing information	Knowledge and information aggregation and content modification
	Diversity - experience diverse views	-----
Communication	Communication and Collaboration - learning through engagement	Collaborative information discovery and sharing
	Modular and non-linear - different routes, forms of learning	-----
	Immediacy - changing working patterns	-----
	Reflection - asynchronous encourages reflection	-----
Democracy	-----	-----
Expression: Disinhibition, Informality, Validation	-----	Connectivity and social rapport
	-----	Content creation

Appendix E. Code Affordance Consolidation

FabSpace Codes	Code Count	FabSpace Level 2 Affordances	FabSpace Level 1 Affordances	Related Literature Affordance
freedom of place	29	multi-place-able	Accessibility	Accessibility
accessibility - shared via	67	multi-medium-able	Accessibility	Accessibility
accessibility - shared via mobile	51	multi-medium-able	Accessibility	Accessibility
freedom of time	17	any-time-able	Accessibility	Accessibility
assistance seeking - easy asking - lazy search - light learning	9	express-able	Communication	Communication
assistance seeking - question	55	express-able	Communication	Communication
assistance seeking - request	3	express-able	Communication	Communication
assisting	23	express-able	Communication	Communication
assisting - problem solving	17	express-able	Communication	Communication
authentic	33	express-able	Communication	Communication
authentic content - current	19	express-able	Communication	Communication
authentic content - relevant	30	express-able	Communication	Communication
chunking	3	express-able	Communication	Communication
colloquial	104	express-able	Communication	Communication
debate	26	express-able	Communication	Communication
emotion	855	express-able	Communication	Communication
enjoyment	10	express-able	Communication	Communication
enjoyment - humour	51	express-able	Communication	Communication
freedom of expression	50	express-able	Communication	Communication
freedom of expression - spirituality	3	express-able	Communication	Communication
freedom of language	4	express-able	Communication	Communication
insight into me - personalisation - authenticity	47	express-able	Communication	Communication
lazy reading/posting	14	express-able	Communication	Communication
morality	7	express-able	Communication	Communication
opinion giving	39	express-able	Communication	Communication
opinion giving - I think, I believe, I suggest	143	express-able	Communication	Communication
opinion giving - suggestion	26	express-able	Communication	Communication
reflection	5	express-able	Communication	Communication
reflection - musings - self conversation	3	express-able	Communication	Communication

assistance seeking	10	expose-able	Communication	Collaboration, Info. Aggregation
assistance seeking - question 2 me	14	expose-able	Communication	Collaboration, Info. Aggregation
belonging/community	61	expose-able	Communication	Collaboration, Info. Aggregation
collaboration	39	expose-able	Communication	Collaboration, Info. Aggregation
collaboration - ubuntu - sharing for greater good	11	expose-able	Communication	Collaboration, Info. Aggregation
convenience - singularity - single space to see everything	6	expose-able	Communication	Collaboration, Info. Aggregation
curation	3	expose-able	Communication	Collaboration, Info. Aggregation
exposure to other - diversity	22	expose-able	Communication	Collaboration, Info. Aggregation
information acquisition	5	expose-able	Communication	Collaboration, Info. Aggregation
information sharing	109	expose-able	Communication	Collaboration, Info. Aggregation
opinion - Seeking	27	expose-able	Communication	Collaboration, Info. Aggregation
portals	40	expose-able	Communication	Collaboration, Info. Aggregation
privacy	39	expose-able	Communication	Collaboration, Info. Aggregation
other honours topics	21	expose-able	Communication	Collaboration, Info. Aggregation
validation - collegial validation	65	confirm-able	Connection	---
validation - Likes	472	confirm-able	Connection	---
validation - seeking (see opinion - seeking)	3	confirm-able	Connection	---
validation -self esteem	2	confirm-able	Connection	---
validation -shout out	3	confirm-able	Connection	---
anonymity	111	conceal-able	Connection	---
actionability - design - power	20	extend-able	Construction	Content Creation
collaboration - ubuntu - design for greater good	3	extend-able	Construction	Content Creation
creativity	31	extend-able	Construction	Content Creation
freedom - design	39	extend-able	Construction	Communication
construction	26	expand-able	Construction	Content Creation
democracy	89	conform-able	Control	---
democracy - voting	49	conform-able	Control	---
leadership	46	conform-able	Control	---
page name	16	conform-able	Control	---
respect	16	confirm-able	Control	---

actionability - empowered	60	conduct-able	Control	---
actionability - power	78	conduct-able	Control	---
organisation	16	conduct-able	Control	---
organisation - self organisation	29	conduct-able	Control	---
profile picture	28	conduct-able	Control	---
timeline	28	conduct-able	Control	---

Appendix F. Change of Title



UNIVERSITY OF KWAZULU NATAL

COLLEGE OF HUMANITIES

SCHOOL OF EDUCATION

Motivation for Change of Dissertation/ Thesis Title

NAME OF STUDENT: Craig Blewett _____

STUDENT NUMBER: 841841906 _____

CAMPUS: Edgewood Pietermaritzburg

DEGREE (e.g. MED(Educational Psychology) : PhD Education _____

SCHOOL: Education _____

NAME OF SUPERVISOR: Wayne Hugo _____

NAME OF CO-SUPERVISOR: _____

CURRENT TITLE: Student design and use of a Facebook Learning Space _____

NEW TITLE: Learning in a Facebook Environment: the writing is on the wall _____

MOTIVATION FOR CHANGE/ALTERATION OF DISSERTATION/THESIS TITLE:

The title foregrounds the central issues more clearly, viz Learning and Facebook and additionally the concept of “design” was not central to the research. _____

(If the motivation exceeds the space allowed, please attached the written motivation to this form)



DATE: 26 Nov 2013 STUDENT SIGNATURE: _____



DATE: _____ SUPERVISOR: _____
DATE: _____ CO-SUPERVISOR: _____