A study of student engagement with online tools on an innovative distance learning postgraduate certificate offers some new insight into links between discussion forum participation, peer review activities and student success. Engagement with either discussion or peer review predicts success in an assessment which includes a learning gain criterion to promote cumulative and reflective learning.

Engagement with online learning tools and retention for an innovative online Postgraduate Certificate in Learning and Teaching in Higher Education

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### 1. Overview and aims

#### **Context and Rationale**

The University of London Worldwide has developed a model for online distance learning known as 'Track C'. This approach makes use of online tools to promote student engagement and enable tracking. With a remit to address staff expertise in online distance learning and face to face teaching, a new online Postgraduate Certificate (PgCert.) in Learning and Teaching in Higher Education has been designed by team of colleagues from the Centre for Distance Education with the aim of providing professional development. The target audience for the programme includes tutors working in the 100 + Teaching Centres worldwide, academic staff working in the University of London Member Institutions and colleagues teaching in Higher Education more widely. The PgCert. follows the Track C model and was designed to present good pedagogic practice for face to face as well as effective use of online tools. The design of the programme includes aspects of distance online learning that encourage retention such as regular tutor support, clear structure, discussion with peers, reflection and tracking of progress and digital videos (Doig and Hogg, 2013). The PgCert. consists of two 30 credit modules.

The initial module *Supporting, Learning, Teachings and Assessment*, was piloted with a small group of 22 higher education staff. The module was designed to support both reflection on learning and peer engagement. In the module, learners are prompted to write about their current teaching practice and ways in which they can develop their practice in a reflective journal which they complete throughout the module. A mid-point assessment ensures that students have tutor feedback on reflective writing, as this might be a difficult concept for some. For peer interaction, the module offers four evenly spread peer review activities, as well as opportunities for presenting and discussing ideas with peers in a weekly topic discussion forum.

Assessment is key to retention but students may not know that they are not making sufficient progress until they received a poor mark or grade and it is too late to take action. Early intervention and feedback can help students with their learning but for many students feedback on a poor performance can be demoralising and they do not respond appropriately (Hughes 2014). However, there is evidence that students are motivated by ipsative feedback, which informs them of the progress or personal learning gain they are making, and helps them identify areas that need attention (Hughes 2017). Such feedback could improve student attainment and help with retention and progression. However, progress in response to feedback needs to be captured and made explicit otherwise learners may not be aware that they are (or are not) making the personal learning gains that will enable them to succeed in the summative assessment (Hughes 2017).

Therefore, the module assessment design aimed to encourage students to gather material for their assessment from the start with an emphasis on rewarding progression as well as outcomes by including an ipsative component in summative assessment. The final summative assessment — a portfolio of development and achievement in teaching theory and practice - explicitly rewards awareness of personal learning gain by including the ipsative (learning gain) marking criterion:

4. Evidence of development of own ideas, values and approaches in relation to critical analysis of effectiveness in teaching and learning including within their own discipline.

The online tools, such as reflective journal, peer feedback workshops, discussion activity are learning gain enablers and aim to help students meet this criterion through self-critique and reflection on their own learning as well as the learning of peers.

#### Aims and research questions

Christine Thuranira-McKeever and Jon Gregson have undertaken a report for the CDE on the impact of engagement with online tools in track C on the student experience and this study complements their work. They found that students on the programmes they studied tended to use the online tools for their assignment at the end of the module. However, this might be too late for some who find there is not enough time to act before the deadline.

The study presented in this report explores how online tools in a context of ipsative assessment influence performance and retention, and thus enable progression to the second module of the programme. Moreover, this study will provide more detail on the quality of student engagement with the discussion forum and peer review than the Thuranira-McKeever and Gregson report.

#### Key research questions are:

- 1. What is the relationship between the quality of engagement with online learning tools throughout the module and a) final overall attainment b) attainment in relation to criterion 4?
- 2. How far does giving feedback to and receiving feedback from peers influence attainment in the two assessments?

After exploring the pedagogic rationale for the module design in more detail, this report will outline the learning analytics and qualitative mixed methods approach and present findings which indicate that the relationship between student engagement with online tools and student success is a complex one. The report concludes with some emerging different typologies of online student and will argue that structured peer review is very valuable for professional distance learners- more so than participating in a discussion forum.

# 2. Design for retention and sustained engagement by participants

It has long been agreed that retention in online courses requires online interaction (Macdonald, 2001). The PgCert. has been designed to maximise student engagement online to support retention and to model good practice to these participants many of whom will be online tutors and/or designers of distance learning. The design of the module went beyond the basic design of online distance courses and as well as providing the usual videos, discussion opportunities and regular support, the module drew on pedagogic principles of developing self-reflection and self-regulation. The design included a reflective journal, receipt of peer and tutor feedback, giving peer feedback and finally alignment with an ipsative assessment criterion. These will be discussed in more detail next.

Enabling Self-reflection through a reflective journal

Reflection on practice is common in professional learning such as in medicine and education often drawing on the ideas of Schön (1991). One method for encouraging students to formally reflection on their practice is to invite them to complete reflective journals throughout the course and indeed to continue to do so as maturing practitioners.

The module in this study encouraged learners to write in a private 'capture your thoughts' notebook and a reflective journal throughout. Students were also invited to present their thoughts publically and self-critique in a weekly discussion forum.

Although Schön has argued that practitioners reflect all the time, there is always a concern that learners might not take up opportunities to reflect critically and systematically especially if reflection is a new idea for them and self-critique is challenging (Boud, 1995; Hughes, 2009).

The ipsative assessment criterion (Hughes, 2017, 2014) aimed to encourage engagement throughout so that learners would build their material for the assignment from the start of the module and not leave all the writing until near the end.

#### Feedback from a tutor

It has long been argued that early formative feedback helps students improve their work (Black & Wiliam, 2009) if the feedback is future orientated, and can be applied in a subsequent assignment (Hattie & Timperley 2007).

The module had an early piece of assessment that is both summative and formative and provides students with early feedback on their ability to reflect on their practice. The assessment is a reflection on practice in online learning. Students also had opportunities to benefit tutor feedback in the weekly discussion forum.

#### Opportunities to compare own work to that of peers in giving peer feedback

Effective feedback is defined by Molloy and Boud (2013) as enabling students actively to compare their work with the expected standards and criteria and not passively 'receive' feedback. Peer review can provide a useful mechanism for engaging students in feedback practice and Nicol Thomson and Breslin (2013) have argued that peer review enables students to see problems in the work of others that they might not see immediately in their own work. Thus, giving a peer feedback may be more beneficial than receiving peer feedback. Being active in a feedback dialogue with peers also helps students understand assessment criteria and standards so that they can undertake self-review and self-critique and become less dependent on tutor feedback and instruction (Nicol and Macfarlane-Dick, 2006).

Systematic peer review workshops were presented to students four times across the module. These workshops were managed in the Virtual Learning Environment (VLE). There was an initial phase where students submit a piece of work for peer review. After a week, the system switched to peer review and students were allocated two others to review at random (see appendix 1 for a screenshot). There was no marking involved although that option is a possibility. After the first peer review workshop, the tutor posted some exemplars of feedback to help students who were unsure about peer review, although this was not a pre-planned intervention as part of the module design.

In the module, there were also opportunities for peer discussion and feedback in the weekly forum.

Final assessment includes ipsative criterion requiring students to provide evidence of their progress.

The ipsative marking criterion mentioned earlier was part of a standard criteria-referenced assessment. It aimed to be a catalyst for student reflection and engagement from the start of the module. Arum and Roksa (2011) in the US have used a large-scale test of learning at university to suggest that spending time on task-both reading and writing -produces learning gain. It was hoped that the learning gain criterion would encourage students to spend time on task repeatedly to demonstrate their progress in learning and teaching theory and practice.

Hughes (2017) has argued that such ipsative assessment requires:

- Clarity over teaching skills/attributes under development so progress can be judged
- Clear recording and assessment of teaching skills/attributes
- Support for students particularly those struggling (from peers and/or tutor)

The module address these to some extent. The module content made the expected teaching skills clear, although there could be some variation in what counts as good teaching between disciplines, institutions and participant prior teaching experience. Recording of development occurred through the online tools mentioned: ongoing discussion forum, continuous reflective journal and early peer review workshops and there is potential here for support from others and self-assessment. However, although the programme design encouraged ipsative self-assessment, the extent to which students engaged with the activities will likely influence their self-judgements and reflections. It is also possible that some students will perform well without engaging, or that students who do engage will fail, because there are external factors at play such as previous experience and personal and/or work commitments.

# 3. Methodology

This is an evaluation study using a combination of data analytics collected from the system and a researcher's judgement about the quality of online learning with peers. Students were informed that the evaluation of use of online tools was being conducted by a member of the design team who was not the module tutor or assessor. Anonymity in the analysis and in the reporting was assured and students were assigned a random student number.

Data was available in the VLE for student use of the following online tools:

- Reflective journal and development notebook
- Self and system tracking of task completion
- Peer review workshops
- Weekly topic discussion forum
- Wiki presentations

However, not all participants used the reflective journal and there was evidence that some people downloaded a pdf file of the materials rather than working online (perhaps because of intermittent

internet access) and might prefer to make notes and reflections offline in ways that would not be captured in the VLE. Because of this data unreliability, the reflective journal entries were not included in the study.

Self-tracking tools may be motivational, but these were easy to 'game' by ticking off an activity as completed even if it was not. Therefore, this tool was also an unreliable data source.

Wiki presentations were little used and so were not included in the study.

This leaves the forum posting and the peer review workshops as data sources. Assessment and feedback data was also accessible.

## Discussion forum postings

Overall learning engagement in forum posting was recorded by counting the total number of posts that were about the course content. Posts that were about the course practicalities or technical or social matters were excluded to measure knowledge building rather than social or accessibility matters (see Hughes 2010 for a discussion of the distinction between these functions of a discussion forum). Romero et al (2013) have suggested that participation in a content related discussion is a good predictor of student success.

#### Peer review workshops

The peer review workshop data showed the number of workshops to which each participant had submitted. Details of the feedback given to peers could also be accessed in the VLE. The extent of taking part in the four peer review workshops was recorded as strong (3 or 4 workshops), moderate (2 workshops), weak (1 workshop), or no engagement. The quality of peer feedback given was judged according to some or all of the following criteria which were drawn out from the most comprehensive samples of peer feedback and were consistent with the programme learning outcomes:

A Describes own practice/opinions,

B Identifies good practice/analysis,

C Identifies a relevant area for action/critique of practice,

D Provides a rationale for suggested action/critique,

E Draws on theory/literature,

### Assessment data

Data recorded in the VLE was anonymised including:

- Interim assignment 1 mark
- Final portfolio assignment 2 mark
- Feedback on development of ideas in response to ipsative marking criterion 4.

This data was then matched to the individual student numbers for the other data collected on engagement. Students were divided into three categories: high achievers (both assignment marks distinctions and/or merits), moderate achievers (passes/one merit) and fails/non-completers.

## 4. Findings and discussion

A total of 22 registered students were divided into 6 high achievers, 7 moderate achievers and 9 low achievers. Engagement with the discussion forum was explored first as this is often considered to be a good predictor of student outcomes. This data was then combined with the engagement with peer review workshop data and the results we shall see give a much fuller picture.

### Engagement with the discussion forum

Engagement with the discussion forum did not predict outcomes for high achievers. Although students 1 and 9 had high posting of messages (36 and 23 postings) the other four high achievers exhibited a moderate (11 or 9) or a low number of posts (6 or 4 posts). See table 1.

With moderate achievers, the number of postings again does not predict achievement again as most had low numbers of posts. There were, however, three students with relatively high postings (32, 12 and 12 posts) and these three did perform well (merit) on the first assignments. See Table 2.

All nine non-submitters or fails had very low or no postings as expected. Four of the five students that engaged minimally with the discussions submitted one assignment or withdrew, and these students may resubmit and pass in future. See table 3. Thus, low posting might provide a warning for poor outcomes, but as we can see above students with low engagement can also succeed.

Table 1 High achievers and engagement with the discussion forum n=6

Student	Discussion forum	Assessment 1	Assessment 2	Summary of feedback for criterion 4
number	engagement no. of	(14 submissions)	(15 submissions one not	
	quality knowledge		given mark)	
	building posts (not			
	social or practical			
	arrangements)			
1	36	distinction	distinction	Extensive, insightful and
	Some very long and			critical development of own ideas,
	complex			values
				and approaches in relation to
				effectiveness in teaching practice
				within their own discipline.
2	6	distinction	distinction	Development of own ideas, values and
				approaches in developing effectiveness
				in teaching practice
4	4	merit	merit	Engages critically in developing own
				ideas, values and approaches in
				relation to own teaching practice.
8	11			Some development
		merit	merit	
9	23 Some quite lengthy			Development of ideas on teaching and
	and complex	distinction	merit	learning and the value of the module
				but less well in relationship to teaching
				in the discipline
14	9	merit	merit	Good development on small group
				teaching

Table 2 Moderate achievers and engagement with the discussion forum n=7

Student	Discussion forum	Assessment 1	Assessment 2	Summary of feedback for criterion 4
number	engagement no. of quality knowledge building posts (not social or practical arrangements)	(14 submissions)	(15 submissions one not given mark)	
11	4	pass	merit	Uses learning gained from SLTA module and the learning experiences to develop own ideas, values and approaches
12	1	pass	pass	No evidence linked to activities of the module to show how learning had an impact on the author's own development – (no appendix)
15	1	pass	pass	No development of teaching in relation to the discipline Links to learning and own development using an appendix could have improved the essay.
17	12	merit	pass	Demonstrates evidence of development of own ideas, values and approaches in relation to effectiveness in teaching practice within the discipline.  Lacks applying theory to practice
19	32	merit	pass	Demonstrates knowledge gained in all aspects of teaching, learning, assessment referencing and practical application of theory
20	1	pass	pass	Evidence to show developing understanding in theory and practice in teaching and learning lacks critique of literature
21	12	merit	pass	Evidence of development of ideas

<sup>\*</sup>Pass for both assignments or pass for one assignment and merit for one assignment

Table 3 Non-completion/fail and engagement with the discussion forum n=9

Student number	Discussion forum engagement no. of quality knowledge building posts (not social or practical arrangements)	Assessment 1 (14 submissions)	Assessment 2 (15 submissions one not given mark)	Summary of feedback for criterion 4
3	3	withdrew		N/A
5	0	No engagement		N/A
6	1	Did not submit	pass	Evaluation of some of their own ideas, values and approaches in relation to effectiveness in teaching practice within their own discipline
7	0	No engagement		N/A
10	0	No engagement		N/A
13	0	No engagement	Plans to re-enrol on the module	N/A
16	1	pass	Did not submit	N/A
18	6	Did not submit	fail	No evidence of progression and no appendices
22	1	Did not submit	Did not submit	

## Engagement with peer review workshops

All the high achieving students except student 1 engaged with the peer review workshops and they mostly gave quality feedback to others. So, peer review seems to be a predictor of success (see table 4). However, the student who did not engage in peer review was prolific in posting and reflecting in the discussion forum. Two students who had quite low forum participation, but engaged with peer review and gave quality feedback, were also successful (students 2 and 4). This suggests that either discussion forum activity or participation in peer review can produce high performance.

In addition, the feedback participants received from the tutor for criterion 4 for the second assignment indicates that all these high achievers demonstrated development in their ideas throughout the module. The pedagogic design with an ipsative component was well understood by the high achievers and it seems likely that engaging in peer review and other reflective activity throughout the module helped students see how they are progressing.

Table 4 High achievers and engagement with both discussion and the peer review workshops

Student number	Discussion forum engagement no. of quality knowledge building posts (not social or practical arrangements)	Engagement with Peer Review Workshops	Quality of feedback to two peers from workshop 2 (or 3 if this is missing) using criteria A-E	Assessment 1 (14 submissions)	Assessment 2 (15 submissions one not given mark)	Feedback for criterion 4
1	36 Some very long and complex	Weak	N/A	distinction	distinction	Extensive, insightful and critical development of own ideas, values and approaches in relation to effectiveness in teaching practice within their own discipline.
2	6	Strong	ABCD ABCDE	distinction	distinction	Development of own ideas, values and approaches in developing effectiveness in teaching practice
4	4	Moderate	BCE ABCDE	merit	merit	Engages critically in developing own ideas, values and approaches in relation to own teaching practice.
8	11	Strong	BC C	merit	merit	Some development
9	23 Some quite lengthy and complex	Strong	ABCE BCDE	Distinction	Merit	Development of ideas on teaching and learning and the value of the module but less well in relationship to teaching in the discipline

14	9	Strong	BCDE	merit	merit	Good development on small
			ABCD			group teaching

A similar picture emerged for the moderately achieving students. All these students had a strong engagement with peer review workshops (see table 5). This is in spite of low engagement with discussions for students 11, 12 15 and 20. As with the high achievers, the students with low forum posting but good engagement in the peer review succeeded. It seems that some form of engagement throughout the module leads to learning and peer review activity is more significant than posting in the discussion forum. Nevertheless, it does not matter which particular activity or combination of activities the student spends time on when there are alternative ways of learning online available. This is consistent with research that indicates that significant time spent on reading and writing tasks produces learning gain (Arum and Roska 2011).

Many of the students on this module viewed peer review as an essential part of their learning, unlike discussion forum activity which was treated as optional, and a quote from one student in the online discussion supports this:

I felt the Peer Review Workshop helped me the most. I felt by looking at the review that others gave me and comparing it to mine, I learnt more than I learnt in any other activity (student 19).

Although there is not much research on peer review in distance education, Madland and Richards (2016) also suggest that peer review is very beneficial. We might ask why these students treated discussion as non-compulsory yet did not view peer review as optional. The structure of the peer review workshop into a clear submission and peer review phase, and the management of the peer review online through allocating peer reviewers and recording when these had been completed, sends out a clear message that online managed peer review is important. It is presented as being on a par with formal summative assessment, and not an optional process for formative assessment, even though marks are not allocated.

It is also worth noting that two students (12 and 15) did not demonstrate development of their learning for the assessment criterion 4 and neither of these gave quality feedback to peers or engaged in discussion. As well as letting colleagues down by not giving feedback as expected (in some cases the tutor had to intervene and provide some feedback so these recipients were not disadvantaged), this pattern of receiving, but not giving, peer review could be a risky strategy for learning: these students only just passed. Nicol, Thomson and Breslin (2013) have proposed from their research that students who take note of assessment criteria and come to understand these through reviewing the work of peers develop self-regulation. It seems very possible that the students in this study who did not provide peer reviews did not have opportunities to develop as self-regulating learners who can articulate their own development throughout the module and meet the assessment criterion 4.

Table 5 Moderate achievers and engagement with the peer review workshops

Student	Discussion forum	Engagement with	Quality of feedback to	Assessment 1	Assessment 2	Feedback for criterion 4
number	posts	Peer Review	two peers from	(14 submissions)	(15 submissions	
		Workshops	workshop 2 (or 3 if this		one not given	
			is missing) using criteria		mark)	
			A-E			
11	4	Strong	No feedback given			Uses learning gained
			В	pass	merit	from SLTA module and
						the learning experiences
I						to develop own ideas,
<u> </u>						values and approaches
12	1	Strong	BC			No evidence linked to
			AB	pass	pass	activities of the module
						to show how learning had
						an impact on the author's
						own development - no
						appendix)
15	1	Strong	Did not give peer			No development of
			feedback in workshop 2	pass	pass	teaching in relation to the
			or 3			discipline.
						Links to learning and own
						development using an
						appendix could have
						improved the essay.
17	12	Strong	ABCDE			Demonstrates evidence
			BCDE	merit	pass	of development of own
						ideas, values and
						approaches in relation to
						effectiveness in teaching

						practice within the
						discipline.
						Lacks applying theory to
						practice
19	32	Strong	BCD			Demonstrates knowledge
			ABCDE	merit	pass	gained in all aspects of
						teaching, learning,
						assessment referencing
						and practical application
						of theory
20	1	Strong	ABCDE			Evidence to show
			ABCDE	pass	pass	developing
						understanding in theory
						and practice in teaching
21	12	Strong	ABCDE			Evidence of development
			ABCDE	merit	pass	of ideas

Student	Discussion forum	Engagement with Peer	Quality of feedback	Assessment 1	Assessment 2	Feedback for
number	engagement no. of quality knowledge building posts (not	Review Workshops	to two peers from workshop 2 (or 3 if this is missing) using	(14 submissions)	(15 submissions one not given mark)	criterion 4
	social or practical arrangements)		criteria A-E			
3	3	Weak		Withdrew		
5	0	No engagement		No engagement		
6	1	Moderate (early on)	Could not view first feedback but looks substantial as an attachment No feedback given	Did not submit	pass	Evaluation of some of their own ideas, values and approaches in relation to effectiveness in teaching practice within their own discipline
7	0	No engagement		No engagement		-
10	0	No engagement		No engagement		
13	0	Moderate (early on)	A AB	No engagement	Plans to re-enrol on the module	
16	1	Moderate (early on)	BC CDE	pass	Did not submit	
18	6	Moderate (early on)	B AB	Did not submit	fail	No evidence of progression and no appendices
22	1	Weak (early on)		Did not submit	Did not submit	

There are two groups of students in the non-completion/fail group. One group consisted of those who did not engage in either the discussion or the peer review workshop and these non-starter students did not submit (students 5, 7 and 10). The remainder engaged to a weak or moderate extent with the early activities of peer review and 3 students in this group submitted one assignment (students 6, 16 and 18) and student 13 plans to re-enrol (see table 6).

Therefore, some early weak or moderate peer review activity is associated with partial completion of the assessment because of lack of sustained engagement. These students could possibly retake the module and complete the outstanding peer reviews or engage in discussion. Student 3 withdrew early explaining the lack of engagement and may have good reasons.

## Characteristics of professional distance learners

The study has tentatively identified some characteristics of professional distance learners:

- Independent
- Collegial
- Collegial and independent
- Early drop off
- Non-starter

Independent learners may be highly active in discussion forums mainly posting their own ideas and self-critique but perhaps sometimes responding to feedback from others. They are motivated and successful but not interested in interacting with peers. By contrast, collegial learners are very responsive to peers, but this may or may not be through a discussion forum. This adds nuance to literature that suggests that engagement in discussion is a predictor of success (Romero et al. 2013). Other ways of offering advice and feedback, such as through peer review, can help these learners towards success without high message posting.

Learners can be both independent and collegial at different times and this might be a strong predictor of success as such learners both develop independent study skills and self-regulation of assessment from engaging with peers.

Another group of students appear to start the programme but drop off early and these learners either do not submit, or do not pass an assignment, as they have not finished the programme. A final group are non-starters who do not submit any assignments and appear to have little intention of completing the course or have been prevented from doing so by external circumstances.

#### Conclusion

This is a small-scale study and it needs to be reinforced with further research on other cohorts and other programmes using both learning analytics and personal data. Nevertheless, there are a number of conclusions arising from this evaluation that are worthy of further consideration.

 Engagement with the discussion forum on learning content is not a very good predictor of completion and success except that unsurprisingly no engagement at all predicts noncompletion.

- 2. Engagement in peer review, and especially giving feedback to peers, is a good predictor of success. Students who engaged moderately or well in the peer review were successful despite low discussion forum posting.
- 3. Different learners might use different tools for success either posting in the discussion forum or engagement in peer review. One student with weak engagement in peer review did perform exceptionally well. This student did use the discussion forum to a great extent for posting ideas and learning which may have resulted in the successful outcome. Thus, spending time on task in either the forum or the peer review was linked to high or moderate performance. Other learners seemed to prefer to engage with both activities and these students were also successful.
- 4. Students who gave peer reviews had positive feedback for the developmental criterion while those who did not provide reviews did not meet this criterion well. This could indicate a lack of understanding of the importance of reflection on progress and learning from viewing the work of others.
- 5. Peer review could be presented as a compulsory activity to ensure that learners try it and then see the benefits.

This study of an innovative online module suggests a number of avenues for tutor development in online learning to encourage retention of professional learners that might also apply to other distance learning programmes.

- Include a variety of online tools especially peer review activities that are time bound and well organised. This will encourage different learners to spend time on task.
- Reflection is cumulative and builds. Look for sustained engagement/disengagement beyond the first few sessions to predict success and warn for non-completion/failure.
- Design assessment that includes criteria for developmental progress (ipsative component) as well as outcomes criteria. Such assessment needs to be supported by peer review and early tutor feedback to develop student self-regulation.

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### Appendix 1

#### Peer review workshop

