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On Demand: Exploring the Potential of Electronic Feedback on Assessment Performance

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Abstract: This paper presents the findings from an evaluatory pedagogical project that utilised an ethnographic case study approach to examine factors influencing the use of online formative assessment and feedback within an undergraduate programme.

The project posed the questions:

- What are the effects of introducing online formative assessment and feedback on learning and assessment performance?
- How effective is online formative feedback in enhancing student success?

The study draws upon data collected from a sample of students (22) who volunteered to participate in the research over a period of one academic year. Data collection tools included: focus group interview, semi-structured questionnaire and student assessment data. The study demonstrates that formative feedback and assessment is beneficial for teaching and learning, and that electronic assessment can offer a more flexible approach that can complement f2f feedback. Online formative feedback in the context of this study had a positive effect upon academic performance and student satisfaction, and demonstrates that students find online formative feedback effective and meaningful. Whilst the small size of the sample influences generalizability, the findings agree with the wealth of literature surrounding formative assessment and the benefits that accrue to students from delivering effective feedback. In addition, evidence from participants in this study is reflected in reports such as the JISC guide: “Effective Assessment in a Digital Age” (2010) and the findings from the EBEAM Project (2012) (Ellis, 2012).

Keywords: Flexible learning; Assessment; Formative; E-learning; Heutagogy.

1. Introduction

There is clear evidence that formative assessment can promote a positive learning experience for students (Jawah *et al.*, 2004; Sadler, 1989). Furthermore, university students want a variety of formats to support formative assessment and feedback, as highlighted in the NUS Report in 2009 and the Student Charter in 2010. In this respect, as long as students are motivated to access the advice, providing online formative feedback can satisfy the need for greater flexibility, as it can be available at a time, place and pace to suit personal demand (Remenyi, 2005). Moreover, is commensurate of the demands of Barnett (2014), who asserts and promotes the notion of flexibility in curriculum design and assessment construction.

According to Nichol and Macfarlane-Dick (2006) formative feedback plays an important part in supporting student learning; for example: “Feedback on performance, in class or on assignments, enables students to restructure their understanding/skills and build more powerful ideas and capabilities” (Nicol and Macfarlane-Dick, 2004). In addition, by embracing the notion of heutagogical learning and teaching, providing feedback that is responsive and can be accessed flexibly has been addressed by the development of electronic assessment, which has the capacity to provide consistent feedback that is accessible and responsive to student need (Gikandi *et al.*, 2011; NUS, 2010), (Snowden and Halsall, 2014).

These claims relating to the potential benefits of electronic assessment delivered within a heutagogical framework have been the starting point for this study, which has investigated the effectiveness of introducing online formative assessment and feedback on learning and assessment performance. The study explored the experiences of third year undergraduate students studying a 40 credit module on a health and community studies programme at a larger UK university on three different campuses (Cohort A). This module was also delivered to two further cohorts. All cohorts followed an identical delivery model. Historically, supporting students studying this module has mainly

been through face-to-face (f2f) tutorials and workshops and this has raised some issues in terms of access for Cohort A students who, due to personal commitments and / or timetabling issues, had significant difficulty arranging f2f support within the weekday, nine-to-five model provided at this particular campus. Therefore, the expressed need to provide flexible, accessible feedback to students was the impetus for this study.

After exploring and testing a number of tools to facilitate the delivery of feedback, GradeMark, part of the Turnitin suite on the University's Virtual Learning Environment (VLE) was selected as the vehicle through which to provide the delivery of electronic feedback. Turnitin is described as: "The global leader in plagiarism prevention and online grading" and "provides rich feedback on student work" through GradeMark. The Turnitin suite is used across the University in most subject disciplines and students are familiar with submitting assignments electronically and receiving feedback from their course tutors via GradeMark.

For the purpose of this study, students in Cohort A were invited to submit two pieces of work for online formative feedback. The work was assessed by two tutors: the Academic Skills Tutor (commenting upon writing style, grammar, syntax and language, and generic module assessment criteria) and the Module Tutor (exploring content, theory, and specific module assessment criteria). However, as Nichol and Macfarlane-Dick argue "there is an assumption that when teachers transmit feedback information to students these messages are easily decoded and translated into action" (Nichol and Macfarlane-Dick, 2006: p201). In this respect students are often perplexed by the language that is used in tutor feedback, as it can sometimes be generic; for example, using comments such as 'be more critical' and 'demonstrate your understanding', and students may need more direction with regard to how they can interpret and implement formative feedback to guide their learning and development (Black and William, 1989). To support this process further and to encourage engagement, a discussion board, monitored by the tutors was set up on the University's VLE and students were encouraged to post questions that could be answered by their peers.

2. Literature Review

Sadler (1989) review of formative assessment is acknowledged by Black and William (1989) and Juwah *et al.* (2004) as an important milestone in understanding and justifying the important role formative assessment and feedback plays in the learning process. Black and William (1989) and Juwah *et al.* (2004) support Sadler's view that formative assessment is a complex process but offers scope for a more student-centred approach to effective learning. Gikandi *et al.* (2011) and Evans (2013) bring the 'picture up to date' evaluating the evidence for how technology can support formative assessment and the interpretation of feedback, which is particularly relevant for this case study.

The multi faceted nature of formative assessment is illustrated by Sadler (1989), who discusses how it can be difficult to clearly define the term, as it can be used to describe a variety of responses that teachers use when attempting to evaluate and support students' progress and achievement. Ahmed and Teviotdale (2007) describe how formative assessment can be formal, ranging from structured, in-class timed tests and essays to more informal everyday classroom practices using questioning and oral feedback. In addition, Black and William include: "All those activities undertaken by teachers, and/or by their students, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged" (Black and William, 1989).

Sadler (1989) suggests that formative assessment has often been overshadowed by an emphasis on summative learning, although when assessing learning, formative assessment and summative assessment both play their part: the former in terms of 'assessment for learning' and the latter being 'assessment of learning'. Whilst both processes are important, Butt (2010) argues that whilst summative assessment is necessary in terms of evaluating whether if learning has taken place, it may also encourage superficial learning as students can become fixated on their grades and ignore feedback comments. In contrast, effective formative assessment and feedback can address the learning process itself and thus, can encourage reflection and more independent and self-regulated learning (Black and William, 1989; Juwah *et al.*, 2004; Nichol and Macfarlane-Dick, 2006; Sadler, 1989).

Brown *et al.* suggest that "learning may be defined as changes in knowledge, understanding, skills and attributes, brought about by experience and reflection on that experience" (Brown G. *et al.*, 1997), and Butt (2010) and Brown S. (2006) both agree that formative assessment and formative feedback are essential to this learning process for both student and teacher; for the student, to be able to understand what is needed to improve and develop their knowledge and skills, and for the teacher, to recognise what support an individual may benefit from to improve their learning and achievement, and to inform teaching. Nicol and Macfarlane-Dick (2004) also stress the importance of effective formative assessment in Higher Education (HE) as an opportunity for educational partnership between teachers and students and state that it "should be an integral part of teaching and learning in HE and that 'feedback' and 'feedforward' should be systematically embedded in curriculum practices" (Nicol and Macfarlane-Dick, 2004).

However, despite the interest in feedback and formative assessment, Yorke (2003) argues that the area is still under-theorised and attributes this to how "formative assessment is quintessentially process-oriented" (Yorke, 2003). Nevertheless, as formative feedback and assessment lie within a constructivist approach to teaching and learning (Neil *et al.*, 2013), it is not surprising that developing a theory of effective formative assessment in which 'one size fits all' is difficult, given the individual needs of students and the variety of topics that may require different approaches to feedback and assessment. For example, according to Black and William (1989), cited in Yorke (2003), in order to develop an effective theory of formative assessment, a number of features need to co-exist. These include an awareness that teaching subjects that have different underpinning pedagogies may create issues in delivering consistent feedback, as well as a recognition that learning each subject may require different skills and

different assessment activities and evidence of achievement; Yorke (2003) concludes that to develop such a theory can be difficult due to reconciling such diverse and complex factors. Perrenoud (1998) echoes this view, suggesting that a theory of mental processes is needed to understand how an individual student learns, but that it does not exist, and that if it did, it may be too complex to apply. Perrenoud (1998) goes on to discuss how the subjective nature of the learning process is determined by the individual situation and perception of each learner, and comments on how complex it can therefore be to 'objectivise' and 'regularise' the learning process "without being able to observe the cognitive processes of the...[learner]" (Perrenoud, 1998). Perrenoud's argument suggests that attempting to separate the learning process into discrete areas may not be advisable or even possible, even though the desire to do so is understandable in terms of attempting to construct new learning situations.

Nicol and Macfarlane-Dick (2004) explain that formative feedback can be beneficial to both teacher and student, as it enables the teacher to understand how to adapt his or her teaching to match the needs of students. Moreover, they argue that feedback from the teacher can encourage the student to reflect on her or his current level of achievement and what to do to improve their learning, thus encouraging more independence (Nicol and Macfarlane-Dick, 2004). Kolb's experiential learning theory is relevant in terms of the abstract conceptualization stage when a student reflects on the feedback given and attempts to understand and theorise how to adapt their performance (Kolb and Fry, 1975), cited in Martin and Martin (2012). Therefore, cognitivist and constructivist learning theories are relevant to formative feedback, as the emphasis is on how the student can assimilate new knowledge and how learning can occur as a result of dialogue and interaction with teacher and peers (James, 2006; Laurillard, 2002).

However, if feedback is to be effective it is crucial that messages transmitted between the teacher and student are mutually coherent (Yacci, 2000) and that students are able to make sense of the feedback and apply it to their own practice (Sadler, 1989). Perrenoud (1998) asserts that feedback is only effective if it has a measurable effect on the learning process. He also suggests that the recipient needs to be cognitively attuned to receiving the message otherwise the feedback may be: "treated as noise or redundancy, and not as intelligible or pertinent information likely to help him or her understand, remember, assimilate knowledge or develop skills...[thus] the mediations are complex" (Perrenoud, 1998).

Therefore, it is clear that how students learn is not a straightforward process; it is 'multidimensional' rather than 'sequential' and that different disciplines may also dictate particular ways of learning that involve making qualitative as well as quantitative judgments (Yorke, 2003). Consequently, deciding what feedback a student needs may depend on a variety of factors: the student's individual circumstances and level of knowledge and expertise, the learning task itself and what is required to fulfil the criteria for assessment, and the tacit knowledge the teacher has and whether the student also possesses such critical faculties and has the skills to put these into practice. In terms of tacit knowledge, Yorke (2003) suggests that if the teacher is not able to fully articulate the assessment criteria, then communicating this to the student may act as a barrier to the learning process. In other words, if the teacher does not have a clear understanding of what is being assessed, then intervention to support the student may be limited. This makes the need for shared understanding of assessment criteria even more important (Sadler, 1989; Yorke, 2003), so that the learner and the teacher are working to the same agenda and the scope for misunderstanding is minimised. Hence, using electronic feedback along with opportunities for dialogue, such as through a shared discussion board, may go some way to supporting communication and overcoming some of the barriers to understanding.

Consequently, (Gikandi *et al.*, 2011) suggest, for formative assessment to fulfil its purpose: "feedback should be timely, ongoing, formatively useful and easy to understand" (Gaytanand McEwen, 2007; Koh, 2008; Wang, *et al.*, 2008; Wolsey, 2008, cited in Gikandi *et al.* (2011) and therefore, online feedback appears to offer advantages over f2f feedback in terms of flexibility of access and speed of response to meet the needs of students. However, Ludwig-Hardman and Dunclap (2003) make two important points with regard to formative feedback relevant to learner support and online environments in particular. Firstly, that students require consistent support through scaffolded learning and to facilitate this through teacher and student interaction, and secondly, in online environments, students need to take on the role of self-regulated learners, and that consistent support and feedback can facilitate independent learning. Furthermore, lack of f2f communication could be an issue when attempting to provide feedback that is formative; being unable to respond to non-verbal clues and 'pick up' on the underlying issues affecting students may be limitations that need to be addressed.

After reviewing the literature it is clear that, in terms of student learning, formative assessment and formative feedback, if delivered effectively, can be beneficial for both students and teachers by focusing on how learning occurs, rather than just measuring learning outcomes. However, there are many variables that can create barriers to effective feedback, such as the lack of shared knowledge of assessment criteria between tutor and students, the complex nature of assessment itself and the limitations that can be encountered in online environments. Despite these issues, there is evidence that electronic assessment may provide advantages over f2f feedback; distinctly, in terms of flexible access and timely delivery, as well as opportunities for shared dialogue, and therefore can be more responsive to student needs, the impetus for this case study.

3. Methodology

Robson (2011) suggests an ethnographic approach is preferred when the investigator wishes to explore the experiences of a specific cultural group. This is achieved by the researcher entering and immersing themselves within the group for a period of time, enabling the researcher to see 'the world' the way the group members do, and

exploring the cultural complexities that influence understanding and experiences. The ultimate goal of the case study researcher as recognised by Yin (2014) and Robson (2011), is to develop concepts that facilitate understanding of phenomena in their natural settings, giving due emphasis to the meanings, views, and experiences of all participants. In addition, according to Cassell and Symon (2004), one of the key features of ethnographic studies is the rich data generated by the researcher as a complete participant in the research setting. In order for this to be achieved within this study, it would have been necessary for the investigators to participate within the group and adopt the role of student. However, ethical and professional obligations would not allow this, highlighting as Robson (2011) suggests, one of the key difficulties of ethnographic research when immersion is considered and the researcher cannot be separated from the context of the study.

Ethnographic research, though, presents a number of advantages that are beneficial to this study; these include the opportunity to use multiple sources of data to research behaviour in a 'natural setting' and the use of an approach that contributes to the 'how, what and why' of the phenomena being investigated (Yin, 2014). Therefore, as Robson (2011) suggests, it is possible to utilise features from ethnography to facilitate research using a case study approach.

Meier and Pugh define a case as an: "individual, a group, an organisation or a society" (Meier and Pugh, 1986). Within this study, this 'case' is a cohort (ie. group) of twenty-three undergraduates who studied a 40 credit (level 6) module at a remote campus over a period of one academic year. The unit of analysis in case study research remains the 'single object,' which Yin (2014) proposes, gives the research a holistic multi-dimensional perspective, acknowledging that case study research describes a 'real' situation and thereby encompasses the contemporary phenomenon, providing an up to date account of the group being studied. This case study produced generalisations as well as revealing the realities of the social story of 'online feedback', resulting in a comprehensible reality from which judgements could be made.

Furthermore, Yin (2014) indicates that the case study is the method of choice when the phenomenon under study is not readily distinguishable from its context as in the case of formative assessment and feedback. This reflects the rudimentary philosophy of case studies, that phenomena cannot really be treated as a set of isolated events or variables to be measured without considering the context in which they occur, suggesting that the emphasis with case studies is the process rather than the product, in that it is a methodology based on discovery. This concept is intrinsically linked with the particular importance of highlighting the developmental side of this research, integrating the findings into practice and subsequently enhancing the provision of different ways of delivering formative feedback, including online channels.

3.1. Sampling Frame

For the purposes of this project, non-probability sampling was adopted, as the intention was to target a whole class of students: 'the case', acknowledging Cohen et al. who suggest that: "The selectivity which is built into a non-probability sample derives from the researcher targeting a particular group, in the full knowledge that it does not represent the wider population; it simply represents itself" (Cohen et al., 2011). A group of students in their final year of a three year undergraduate health and community studies degree was purposively selected because of their history in receiving academic skills support f2f in the previous two years through workshops and tutorials. However, they had not been given any formative feedback online during that time from the Academic Skills Tutor although, during their course, they had all submitted assignments and received feedback from subject tutors electronically via GradeMark. At this stage being familiar with the technology was thought to be an advantage so that and experiences would not be overshadowed by difficulties in using the technology.

3.2. Data Collection and Analysis

Robson (2011) suggests that a case study approach works well to collect empirical evidence with a particular group using mixed methods of data collection, both quantitative as well as qualitative, within an authentic situation. Furthermore, Cohen et al. (2011) and Saunders et al. (2007) argue that using mixed methods brings together the benefits of both approaches, and that both types of data are needed and can give richer answers when combined. Therefore, the tools selected for data collection included a questionnaire, focus group and summative assessment data.

Following the delivery of online feedback, the students (Cohort A) were surveyed using an online questionnaire to evaluate their experiences of receiving formative feedback online, and a focus group was held with the class to allow for more open discussion. Assessment data was analysed using simple descriptive statistics and compared to assessment data from three further Cohorts (B, C and D) who did not receive online formative feedback.

3.3. Questionnaire

A semi-structured questionnaire was developed as, according to Sharp, "these are well suited to individual research projects" and "offer a sensible middle ground" (Sharp, 2009) between structured and unstructured questionnaires, as the former may limit the collection of rich data and with the latter, it may be difficult to gather evidence relevant to the investigation. As the questionnaire was to be delivered online, it was felt appropriate to use a web-based program that allowed for data analysis once the results were returned. In addition, a f2f focus group was held to explore in more detail issues that were raised by the answers given in the questionnaire.

The questionnaire included closed questions using a rating scale and also asked for comments from the respondents to allow for more qualitative responses. Before surveying the respondents, the questionnaire was piloted with both the Course Tutor and colleagues to test for reliability and validity (Denscombe, 2003). Following two pilot tests, minor adjustments were made to the questionnaire.

3.4. Focus Group

This method was selected as, “by encouraging discussion amongst participants and the sharing of perceptions in an open and tolerant environment” (Krueger and Casey, 2009, cited in Saunders *et al.* (2007), the researcher acting as facilitator is able to raise particular issues that may not have received as much attention in the questionnaire. Given the limitations of the questionnaire, the focus group provided a richer exploration of the issues and responses as with a semi-structured interview (Sharp, 2009). Furthermore, as the questionnaire was limited in scope and the focus group was to be held after the questionnaire had been completed, it was anticipated that the results from the questionnaire would provide data that could then be explored in depth within the focus group.

3.5. Data Analysis

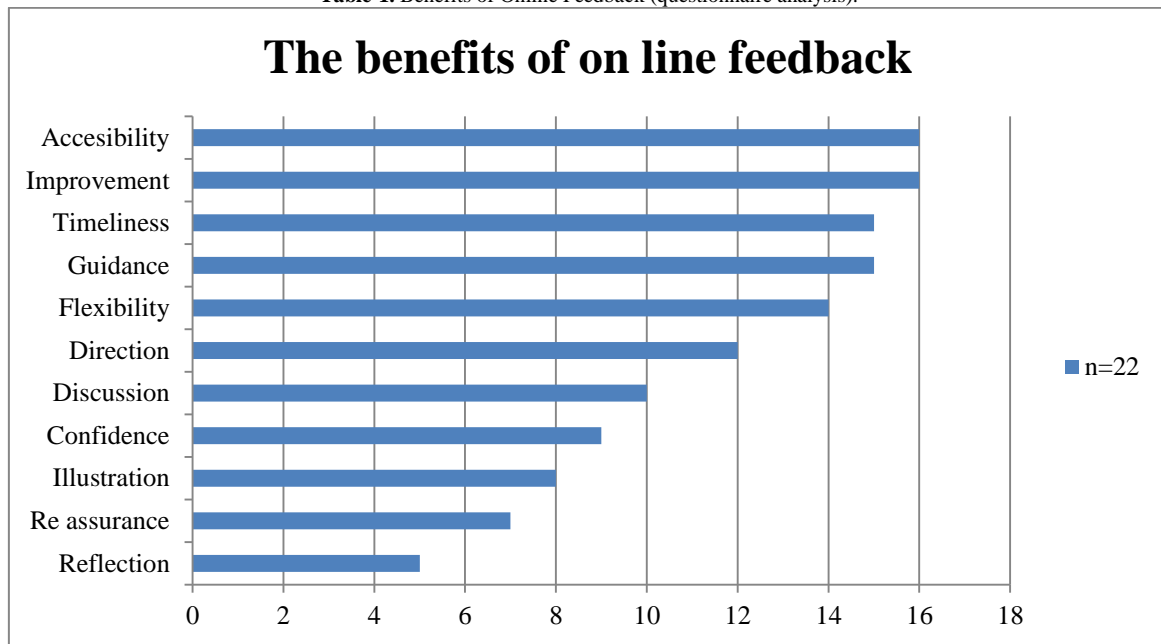
Cohen *et al.* (2011) advise that when collecting qualitative data, it is important to be aware from the outset as to how the data will be analysed; this is because a large amount of information can be generated, and to render this manageable, an ongoing process of categorizing and refining into more focused themes ensures a systematic evaluation of the data. Therefore, as each data collection method was carried out, the evidence generated was subjected to a preliminary analysis of relevant themes, and this helped to refine each subsequent collection. In addition, the literature review provided a framework for theoretical categorization, and the initial examination relied on descriptive identification of themes (Maxwell, 2005, cited in (Cohen *et al.*, 2011)).

Data collected from the semi-structured questionnaire and interview was analysed through a coding process by categorising the concepts that emerged as each transcript and questionnaire was reviewed. This notion of coding was derived from the grounded theory approach postulated by Glaser and Strauss (1967). There are multiple ways of coding; however, the most popular interpretation and the method utilised in this study is that which uses a ‘cut and paste’ method, where significant excerpts from the narrative are ‘cut’ and then ‘pasted’ according to key headings that have been identified in relation to themes generated from the data (Catterall and Maclaran, 1997). The questionnaire provided the opportunity for further simple descriptive analysis, enabling the numerical ranking of key benefits of on line feedback. In addition, simple statistical data was collected from student profiles, identifying assessment performance of those students who had participated in the project, enabling intra and inter-modular comparisons with those students who had not participated. Furthermore, end of year course evaluation data illustrating student satisfaction and student retention was also collated enabling a comparison of assessment and satisfaction scores between the groups.

4. Findings and Discussion

Eighteen out of a cohort of twenty-two students submitted work for formative feedback (Cohort A). Out of the twenty-two online questionnaires presented to the respondents, only eleven were completed. However, this may have been because the questionnaire was requested at a particularly demanding time during the final year; hence, some students may not have responded due to other commitments, and having received feedback, students were perhaps more focused on completing final assignments. In addition, out of the eleven respondents, two students did not submit their work for feedback online; this was because a time frame was given within which students could upload their assignments for feedback and although it was generous - up to three months was allowed - they each ‘ran out of time’ (focus group findings), and, one of the students had already received feedback f2f whilst the assignments were being assessed formatively online. Table 1 below illustrates the numerical representation of positive responses to the questionnaire, which explored the benefits and restrictions of online formative feedback for this cohort of participants.

Table-1. Benefits of Online Feedback (questionnaire analysis).



The responses are consistent with the focus group interview analysis using thematic coding (Cohen et al., 2011), from which the following key themes were identified:

- Accessibility
- Improvement
- Timeliness
- Guidance
- Flexibility
- Direction
- Discussion
- Reassurance
- Confidence
- Illustration
- Reflection

As might be expected, the reasons why students opted for formative feedback match the evidence from the literature: that feedback provides guidance in relation to improving work or ‘closing the gap’ (Sadler, 1989; Yorke, 2003). Illustrating this, one student provided a typical comment for the group:

“I submitted my work because I want a good degree and I knew that this [obtaining feedback] would help me get better grades.”

A further student from the group emphasised:

“I sometimes don’t always know what the tutor is talking about [in lectures]so when I write about it [in assignments]at least he can tell me if I’m right or not...”

The study also supported the view that formative feedback provides reassurance and increases confidence (Jawah et al., 2004; Nicol and Macfarlane-Dick, 2004).

“I’m always a bit nervy about submitting my work, you never know if you’ve handed in what you [tutors] want...so at least this way if it’s wrong, you can tell me first !...”

It was also noted that several students indicated they would always seek feedback when offered and one typical comment illustrated the effects of contemporary education funding within HE and the notion of the student consumer:

“we’ve paid for it [feedback] so I’m having it... its daft if we don’t do it![access feedback]”

Several students made comments illustrating the importance of the feedback to enhance the overall quality of the work; one such example was:

“I’ve never really understood what [assessment] criteria meant until we got this feedback...XXX and XXX [the Tutors] linked it into the assignment so I now know what I have to do.”

Thus emphasising the significance of ‘feed forward’, illustrating what Nicol and Macfarlane-Dick (2004) argue is important in terms of embedding formative assessment within the curriculum and encouraging students to take responsibility for their own learning.

In relation to how feedback was inserted into students’ assignments, direct annotation on the text was illustrated by the questionnaire and focus group interview to be the preferred option; this reflects evidence from heuristic evaluation that users prefer immediate access rather than ‘clicking’ several times to obtain information (Nielson, 2005).

All participants indicated that the feedback given was very helpful and only two students suggested that it was too generic. One participant would have liked links to academic websites as well as specific examples included within the annotated comments; this is supported by Wolsey and Koh (2008, cited in Gikandi *et al.* (2011) who suggest that using examples and linking feedback with learning outcomes can promote understanding and support the learning process.

This sample of students rated the process of obtaining feedback online using Grade Mark highly due to its flexibility; they could access their feedback from home, work, university etc. and at a time to suit them, which echoes the findings from the National Student Forum (2009) and the recommendations from the NUS Charter on Feedback and Assessment (2010). Distinctly, it also provides further support to the heautagogical approach to learning and teaching alluded to in the extensive report on “flexible learning” by Barnett (2014).

The evidence from this study, whilst limited in scope, found that GradeMark was also preferred over feedback via email attachment and f2f feedback. However, it is important to point out that these students have been offered regular feedback in f2f tutorials throughout their course of study; whether the responses would have been so positive about online feedback if this was their only method of receiving feedback can be questioned. Indeed, comments from two students indicated that they prefer f2f feedback so they can engage in a dialogue with their tutor to gain more in-depth guidance (Jawah *et al.*, 2004).

GradeMark was rated as an easy and flexible tool to use. Despite this, one participant did suggest that it was still important to have good IT skills as she did find it difficult at times to access her feedback, and one student pointed out that she did not have internet access at home, reinforcing Moule (2006) recommendations, that students (as well as tutors) need to have the requisite skills and resources for using the technology as well as having flexible access.

The reactions of students when asked in the focus group about their experience of accessing feedback using Grade Mark mirrored the responses to the questionnaire, and most of the students expressed a positive reaction, both to being given feedback, and to using the Grade Mark tool. Again, this agrees with the literature on the positive effects of feedback on learning and performance (Black and William, 1989; Juwah *et al.*, 2004; Sadler, 1989) including online feedback (Gikandi *et al.*, 2011).

In contrast, one student explained that getting feedback online can sometimes be disheartening if the comments seem mainly negative, and only after f2f feedback did she realise that her work did not need a ‘total re-write’:

“I got very worried when I looked at the comments on my Methodology and thought that I was going to have to re-write the whole thing again. But after talking with my Tutor, I realised that I had misunderstood and only parts of it needed extra work.”

As Moule (2006) and Bennett and Youde (2010) assert, communication can be an issue in online environments. Tutors need to ensure that students do not feel isolated and messages should be mutually coherent (Yacci, 2000).

One participant talked about being ‘lost in her own world’ when researching and writing assignments, so feedback kept her ‘in touch’ with reality. Another participant discussed how she liked to get the feedback online first and then could choose whether to request f2f feedback:

“It’s great having the feedback and realising that if it all looks OK, you can carry on, but if there are some problems with the writing then I can see my Tutor for feedback in person.”

This point of view reflects the NUS (2010) Assessment and Feedback which recommends a variety of formats for feedback and distinctly placing further emphasis upon the importance of coherency, as emphasised by Perrenoud (1998), Yacci (2000) and Evans (2013).

A further significant outcome illustrated by the findings of the focus group, relates to reflective learning and independent learning. One student mentioned that being able to access feedback flexibly meant that, having a record of the feedback, she was able to revisit the comments and contemplate these in her own time and space, thus promoting more ownership of the learning process, and enabling a more reflective approach:

“I really appreciated being able to keep re-reading the feedback and having time to think about what was said.”

This supports what Juwah *et al.* (2004) claim, that feedback plays an important role in promoting reflective learning. Another important finding in terms of supporting students effectively is demonstrated by the comment made by one student, that having two tutors giving feedback on the same assignment was really helpful. They knew precisely which element of the assignment (knowledge or ability/skills) was being emphasised within the feedback and when both tutors identified the same issue such as referencing, the message was reinforced. For example one student commented:

“It was really good having both Tutors to give us feedback as we really got the point if both of them said we needed to reference a point we’d made.... and we knew that XXX[the Skills Tutor] was concentrating on the writing skills where XXX (The Module Tutor] was talking about the theory stuff.”

Another student also described how this was:

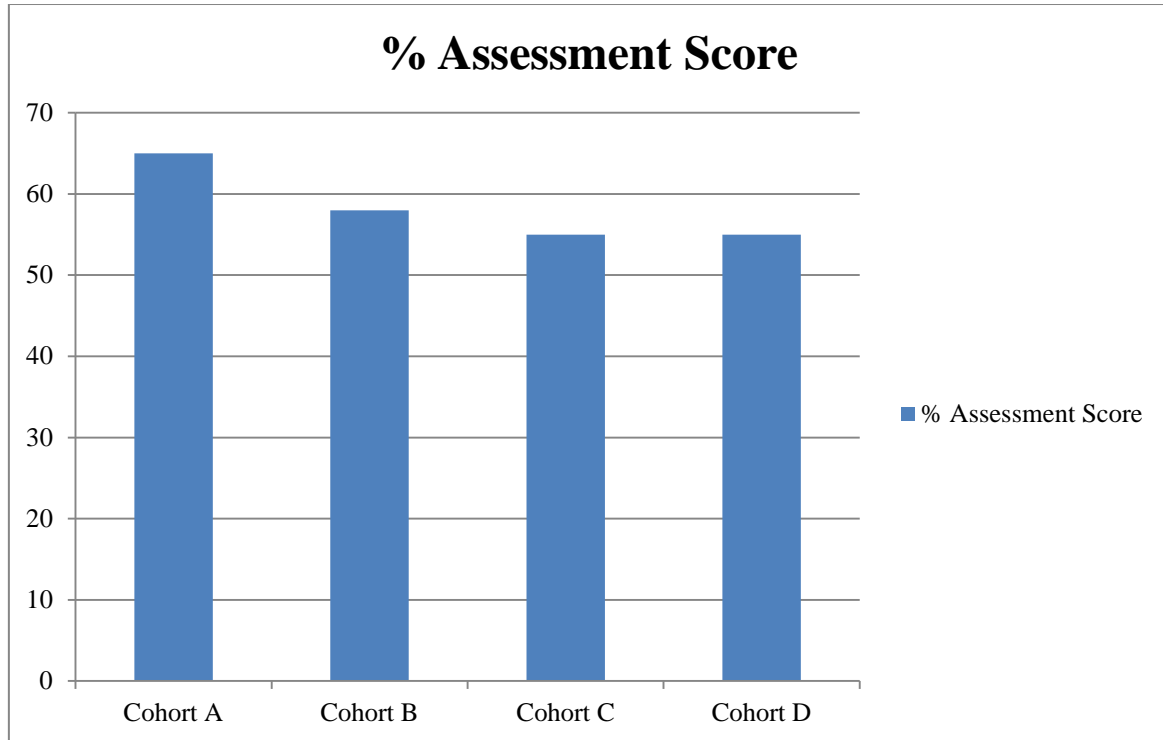
“really useful, so for my other assignments when tutors talked about grammar I could look this up on XXX’s comments (in this assignment) to so see what it meant.”

Whilst having two tutors providing feedback could be regarded as labour intensive, the advantages in terms of successful student learning outweigh this extra cost and enable the embedding of academic skills into the curriculum. The benefits of this can be seen when assessment performance is considered.

4.1. Academic Performance

Academic achievement, (Table 2 below) of participants (Cohort A) was measured by calculating the mean percentage score of the module, and then comparing it with the mean score of those cohorts of students (Cohorts B, C and D) studying the same module who had not been part of the study. The students who had participated in the study achieved five percentage points higher than those not participating. In this case, it can be postulated that online feedback does have a positive effect upon assessment performance, thus contributing to a distinctly higher classification. This is a significant finding that has received little attention in the literature as yet and supports the attention that should be given to the added value of formative feedback on student achievement.

Table-2. Assessment Score.



Finally, the National Student Survey is an important indicator of perceived quality and satisfaction. Whilst this survey does not take into account individual modules, an evaluation of student perceptions of this module was undertaken using the same criteria within a structured quality framework. The module scored 100% satisfaction in response to each of the elements of assessment and feedback, demonstrating that students both appreciate and understand the benefits that accrue from effective formative feedback and formative assessment in terms of their learning and achievement.

5. Conclusion

This case study has attempted to evaluate online formative assessment and explore its impact upon learning and assessment performance. After analysing the findings, there is clear evidence to demonstrate that formative feedback and assessment is beneficial for teaching and learning, and that electronic assessment can offer a more flexible approach that can complement f2f feedback. Whilst the small size of the sample may appear to limit the generalisability from such a localized study, the findings agree with the wealth of literature surrounding formative assessment and the benefits that accrue to students from delivering effective feedback (Black and William, 1989; Juwah *et al.*, 2004; Nicol and Macfarlane-Dick, 2004; Sadler, 1989). In addition, evidence from participants in this study is reflected in reports such as the JISC (2010) guide 'Effective Assessment in a Digital Age' and the findings from the EBEAM Project (2012) (Ellis, 2012), which was carried out with a large number of students taught wholly online, and demonstrates the advantages of electronic assessment. Distinctly, within an ever-increasing performance and outcome driven culture in HE, online formative feedback in the context of this study had a positive measurable effect upon academic performance and student satisfaction, and demonstrated that students find online formative feedback effective and meaningful. Student satisfaction was implicitly linked to the opportunity presented by flexibility in access.

Significantly, in this study, more tutor time was expended as both the Module Tutor and the Academic Skills Tutor were marking scripts. This is an unusual approach, but one that students found very beneficial, as they were able to receive feedback on different aspects of their learning: subject knowledge and academic skills, and when focused on the same issues, such as use of evidence and referencing, this reinforced the importance of these areas. This could be a creative approach to embedding skills without using class time for skills support, and with subject

tutors and support staff working in collaboration, it will yield opportunities for learning from each other in terms of sharing understanding of learning outcomes and assessment criteria.

As discussed, the beneficial effects of providing formative assessment and feedback have been well documented and have been borne out in this small, localized case study. It is clear that students appreciate being able to access feedback flexibly and that electronic assessment facilitates this, although it is important to be aware that, even now, not all students have access to the internet at home, and that training with technology is still an issue for students and staff. However, as students have different learning styles and lead different lifestyles, offering feedback through a range of formats should support a better and more flexible learning experience. Furthermore, there have been significant findings with regard to the opportunities electronic assessment affords for collaboration between module tutors and academic skills tutors and the embedding of skills support within modules, as well as promoting reflection and more independent learning in students. A shift in thinking towards the adoption of flexible learning and teaching approaches that embrace the notion of heutagogy, will enhance the learning experience for students and student communities in response to an ever changing higher education.

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