DEVELOPING PRINCIPLES IN PRACTICE: A DIALOGUE IN ASSESSMENT AND FEEDBACK

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Abstract This paper presents an overview of the Dialogic Assessment and Feedback (DAF) project which is funded by the Staff and Educational Development Association (SEDA). DAF is part of a social constructivist pedagogical approach which highlights the importance of a strong commitment to engaging with and investing in learners and formative assessment to benefit learners. Enhancing, Enriching, Engaging in dialogue with learners; has been shown in this project to be a key critical enabler of change in assessment and feedback practice. DAF is deeply rooted in a dialogue and partnership approach with learners. The DAF principles of 'good learning, teaching and assessment" practice' were established by engagement in dialogue with tutors and learners alike and are presented in this study; using the learners own voice. These principles were voiced and developed based on learner and tutor experiences of learning and teaching; whilst engaged in co-constructed and collaborative assessment and feedback opportunities on a final year course on a BSc programme of study. The DAF model is iterative and evolutionary, evolving based on practice across a number of subject disciplines in Higher Education. As such the project presented is a work in progress.

Introduction

The DAF conceptual framework is deeply rooted in four educational theories that of: social constructivism, collaboration and participation in learning and teaching whilst engaged in assessment and assessment feedback using a blended learning approach.

> *"These are rooted in educator's experiences of using a blended social constructivist approach; the blended approach combines technologies outside of the classroom with face-to-face class-based activities (Stewart, 2008, MacDonald, 2006). This blended approach brings together a rich educational experience based on a collection from readings on social constructivism as the foundation for the use of technology to support pedagogical practice developing a deep awareness and appreciation of what can happen when merging the two"* (Doolan, 2010).

To this end, the blended concept comprised a flip camera which was used in class for recording learner assessment and feedback. Whilst a wiki was used to extend the class based dialogue on assessment and assessment feedback by uploading the video recordings captured using the flip camera in the context of the assessment. And relating to the co-constructed artifact; which was produced as a collaborative outcome of the group based assessment and feedback.

To support the development of higher order skills; such as critical thinking (Blooms, 1956), and in the development of generic skills; such as communication it was important to provide assessment and feedback opportunities that supported; the co-creation and co-construction of learning subject knowledge and skills.

This involved working collaboratively with tutors and learners alike I from the preparation stage, to the implementation and evaluation stage of the assessment and feedback process. Collaborative learning has been shown to support learners in the development of knowledge, subject and social skills whilst engaging in collaborative groups and assessment (Doolan et al, 2006) This collaborative approach was intended in addition to the development of skills, to support the construction of shared knowledge freely and openly, whilst providing learners and tutors with opportunities to learn from each other by engaging in assessment and feedback activities. Given the collaborative learning approach it was further intended to support the building of relationships (Lave and Wenger, 1991) with peers and tutors; in order to help strengthen the group dynamic, whilst at the same time stimulate thinking, and free expression of ideas; in engagement in learning with each other within a social construct (Vygotsky, 1978).

Participation in pedagogy comprised listening to the learners' voice, and taking action in the support, creation and management of their own learning (L&T Scotland, 2007). This was possible based on the low numbers: 22 learners of which [4 were never present] studying the module. To provide an opportunity for the tutor to invest time through interactions with learners whilst providing collaborative assessment and feedback opportunities to strengthen the group dynamic, to nurture free thinking, and the sharing of ideas, etc. The emergence of new social media such as wiki can play a part in this and help to break down barriers when used in participatory and collaborative learning (Doolan, 2010a). Coupled with the use of mobile technology and low numbers it was easy to engage learners in participatory and collaborative learning. The assessment activities set helped students to decide on what mix or blend best suited their needs hence, this facilitated the concept of self-differentiation. The learning provision was intended to help learners maximise their learning and assessment opportunities.

DAF model

The DAF model is iterative and evolutionary developing and aligned with the practice of learning, teaching and assessment. This model was developed through engagement with tutors and students whilst the author acted as consultant observer/researcher on tutors and learners practice. There was a necessity to capture the requirements of assessment based on a number of factors: the learner [type, level, and need], learning design aligned with module content, and tutor teaching style and teaching philosophy. In addition it was important to consider the learning outcomes in terms of skills and knowledge. The module was assessed based on summative assessment a final year exam. This was of concern to the tutors given their teaching philosophy and the desire to provide opportunities for learners to regularly receive timely feedback on their learning. The tutor reflects:

"*When asked to teach the Level 3 course on Data Visualisation, the Definitive Module Document specified 100% summative assessment by final exam. This was somewhat at odds with my proposed approach to assessment on this course based on the following activities:*

- *critique of existing data visualisation artefacts (from press, web, etc)*
- *design of visualisation artefacts based on varied project definitions and associated datasets"*

Therefore, it was decided to provide formative assessment and "real-time" assessment feedback opportunities which put learners at the centre of their own learning. This approach necessitated a framework in which students would receive guidance on their learning and assessment. In developing the module it was decided to avail of formative assessment design that allowed for a

maximal feedback options on the assessment. The tutor further reflects that: "These *options were to encourage:*

- *tutor to student feedback – individually, in groups and as a class*
- *student to student (peer) critique and feedback*
- *student to tutor feedback for improved course delivery both short term and long term"*

The formative assessment and feedback was also intended to provide a continuous cycle of assessment and feedback practice towards the summative assessment, therefore, it was intended that the assessment activities would culminate into the final exam which would consist of two parts, reflecting the assessment activities. However, the limitations of the class timetable and the number of weeks on the module schedule of 12 weeks had to be considered.

With this in mind, the academic calendar was used to schedule the formative assessed activities and feedback which included 4 hours of scheduled contact time per week [2 hours lecture, 2 hours hands-on tutorial]. This would allow for a sequence of 4 "mini-projects" as the formative assessment and feedback to be accommodated each of which would last 2 weeks [the 4th also including the Easter recess to extend to 4 weeks]. 4 formally scheduled critiques were also scheduled in the semester. This is illustrated in table 1.

Week	Lecture Assessment Activity	Tutorial Assessment Activity
18		
19		Mini-Project 1
20	**Critique 1**	Mini-Project 1
21	**Mini-Project 1 Presentations**	
22		Mini-Project 2
23	**Critique 2**	Mini-Project 2
24	**Mini-Project 2 Presentations**	
25		Mini-Project 3
26	**Critique 3**	Mini-Project 3
27	**Mini-Project 3 Presentations**	What is the Question for MP4?
28 – Easter		
29 – Easter		
30	**Critique 4**	Mini-Project 4
31	**Mini-Project 4 Presentations**	**Mini-Project 4 Presentations**

Table 1: Formative assessment activities as scheduled

The purpose of the assessment schedule when initially conceived was to address the following issues:

- Provide the design and analysis practice required to meet the learning outcomes of the course. This would be achieved by developing ever more complicated tasks, requiring greater and broader understanding of the processes, methods and techniques needed to deliver valid information visualization artifacts, thus embedding the knowledge needed through formative assessment for the final summative exam.

- Offering a variety of opportunities to students to critique their own work and that of others. This would help learners to develop an understanding of good application of the methods and techniques, supplementing practical application, again supporting learners through formative assessment to the final summative assessment exam.

- Encouraging self, team and class wide reflection by the student against a diverse set of case studies both within and without the student areas of expertise.

Mini-projects

The mini-projects were carried out in small groups (2 or 3 students).
This provided 7 active groups from a class list of 22 (4 never present).

The use of a diversity of approaches to the mini-projects was chosen:

1. Processing – a Java-based development environment oriented towards the creation of information visualizations. The students were provided with a time-series graph solution and tasked to define a question of interest to them which could be answered by sourcing a data set and modify the solution to produce a visualisation to answer that question.

2. Poster – Based on a restricted set of domains, the students were asked to create a poster visualization which answered a self defined question within the restricted domain set.

3. Many Eyes – the IBM sponsored Many Eyes web site was used to develop a visualization or set of visualizations to answer any question defined by the students

4. Open Visualization – The final visualisation was unrestricted in terms of tools, domain or question.

"I feel that the lack of restriction on data domains limited the effectiveness of this approach. Many of the students commented that the domains should have been limited and even specific questions should have been asked. The outcome was that too much effort being expended on the formulation of a question rather than answering it through the development of a visualization. [sic].

Critiques

The students engaged with the critiques. Many of the techniques, encoding methods and styles were raised during the dialogue. The formal critiques were from a mixture of sources. One looked at Edward Tufte's analysis of the Challenger Space Shuttle disaster; others were taken from visualizations in the press and technical papers. The critiques had a number of benefits:

- they allowed students to learn and imbed their knowledge in a class dialog on a given subject matter supporting the teaching material
- supported the building of ideas through collaboration and intercommunication
- provided an engaging and fun environment in which to explore the subject area and materials
- were well attended
- they gave students direct practice with the exam questions they would be presented with in the summative assessment paper

At the start of the module the tutor encouraged students to explore media, popular press and web sources for visualisations that they could self-critique, or bring them to tutorials for comment. The tutor would like to expand this further in future module instances in order to encourage the students to increase their understanding of the teaching materials and their skills in the practical application of this knowledge.

The presentations

The presentations were recorded using the flip camera were organised as follows:

- Group (order selected randomly) presentations
  - 3-4 minute presentation
  - Tutor-led class critique, question and feedback
- Final Tutor Feedback on general points from the presentations
- Open discussion on the validity of the mini-project, what worked and what didn't

Summary of findings

The collaborative learning, assessment and feedback experience overall worked well, although the structure of the presentations tended to become a little more fluid and time-keeping was difficult to maintain. This was due to the interest in the content of the visualisation and the diversity of the subjects. By limiting the subject matter, whilst not wanting to reduce the enthusiasm, the presentations do need to be oriented towards the development and implementation of the visualisations and the choice of encoding methods and techniques used and discarded.

Collaborative learning within small groups had two major benefits in relation to this module. Firstly, the small groups (2 or 3) allowed for a diversity of ideas to be considered, but limited the range of these options so that in the limited time available, some great presentations were developed. Secondly, the number and size of the active groups allowed some very constructive class-wide discussions and critiques to take place. Much of this is also due to an active and engaged group of students, supported by a nucleus of highly articulate and enthused students who acted as a catalyst to the wider discussions by the class as a whole. Hopefully, future studies on this module in future years will allow the significance of this last factor which is outside the control of the lecturing staff to be determined.

The presentations were videoed using a flip camera. The students could review their presentations as well as the comments and feedback from their peers and tutor. Initial comments from the students have been positive, it was stated that in the presentations it was

not easy to take on board all the comments made by their peers and so reviewing the presentation at a later time was valuable.

Given the popularity of the videos of the mini-project presentations, it may be good practice to video the critique sessions also in the future.

From a technical perspective having recorded the video using the flip camera supplying the videos through the use of "Flip" Cameras and the institutional resources StudyNet, was problematic as it requiring conversion and individual uploading to the Video portal, as well as linking to the portal from the wiki pages on the module pages. The use of the institutional wiki was problematic as a resource to share and upload video. It was also found to be limited in scope; with limited user control and functionality expected of a wiki which is goes against the wiki concept particular of a dynamic environment (Doolan, 2010a).

The Flip cameras themselves were extremely easy to use and the quality of the images was good. The new HD variant of the Flip Camera will provide better quality images which may allow for details of the presentations to be included on the presentation videos where appropriate.

The sound quality is good and without editing it is possible to pick up all comments. The videos were not edited before uploading as this would have added to the workload significantly and given that only a single camera was used, editing would simply have removed some material.

In the majority of cases the comments made were concise and thus editing was not necessary. Given the number of students on the module (22) it was possible to cover the presentations with one camera and capture all the important feedback. If future instances of the module have larger student numbers the use of more than one camera may need to be considered for the feedback sessions.

There is also a need to focus on the presentations and provide more guidance on format and expectations, in this study these were left open to the learner to decide and agree upon within their group.

In the early presentations, too many questions focused on the content rather than the methods and processes used. There was a limited amount of critique of the visualization itself in the first and second mini-projects. In the later presentations, the stronger students did start to question more their approach to the creation of the visualization artifact and whether a better encoding method or design would have been appropriate. However, this was seen as evidence that the students were developing in confidence, subject and skills development. It is intended to help support this earlier on the 12 week module.

In conclusion

The basic structure of the assessment on this module seemed to work well, in terms of student engagement, working and collaborating on formative assessment and feedback. There was perceived value in terms of student learning, fun and efficiency of tutor time.

There are short-term improvements to be made:

- Guided mini-project definitions, rather than fully open choice
- Wider range of tools and applications for use with mini-projects
- Assess video use for Critique sessions as well as Mini-Project presentations

- Encourage more self-critique through set aside time in tutorial sessions
- Encourage use of visualisation techniques in major project dissertation
- Develop use of wiki for feedback earlier in module
- Explore use of multiple cameras in presentation situations

In the longer term the following needs to be considered:

- Use of in-course formative assessment to reward effort and learning undertaken in mini-projects
- Look to create a more coordinated set of mini-project structure which build on each other to produce a major artifact
- Develop major projects specificific to this area of study
- Closer integration with related modules on the BSc Programme

Enhancing, Enriching, Engaging in dialogue with learners and tutors; has been shown in this project to be a key critical enabler of change in assessment and feedback practice. And to instigate reflections in and on practice whilst at the same time considering future improvement for the module; these are based on practice and findings from practice based on experiences in this study

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Acknowledgements

Biography

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