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SITUATED FORMATIVE FEEDBACK – HOW A MOODLE CAN ENHANCE STUDENT LEARNING THROUGH ONLINE FEEDBACK

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Abstract

This study addresses the conceptual challenge of providing students with good quality feedback to enhance student learning in an online community of practice (COP). The aim of the study is to identify feedback mechanisms in a virtual learning environment (VLE) and to create a full formative feedback episode (FFE) through an online dialogue. The paper argues that dialogue is crucial for student learning and that feedback is not only something the teacher gives to the student. Viewing good quality feedback as social, situated, formative, emphasis is put on the establishment of dialogue. We refer to this type of feedback as, Situated Formative Feedback (SFF). As a basis for exploring, identifying and discussing relevant aspects of SFF the paper analyses qualitative data from a Moodle dialogue. Data are embedded in the qualitative analytic program Nvivo and are analysed with a system theoretical textual analysis method Asynchronous written dialogue from an online master's course at Aalborg University forms the empirical basis of the study. The findings suggests in general that students play an essential role in SFF and that students and educators are equal in the COP, but holds different roles. The students need to take ownership over the learning goals and create a shared understanding of the learning objectives

Introduction

Assessment may be viewed as the only way that we can know whether what has been taught has been learned. Assessment may be seen as the bridge between teaching and learning (Wiliam, 2010). Feedback used in educational contexts is in general considered as essential to increase knowledge and skill acquisition by any learners and feedback is also depicted as a significant factor to dramatically enhance student learning (Black & Wiliam, 1998; Hattie & Timperley, 2007; Kluger & DeNisi, 1996; Shute, 2008). Hattie placed feedback among the five most powerful methods that influence student learning and the most critical mediator for many other successful methods of improving student learning. Despite these findings we need to be aware of how little is actually understood about the characteristics and quality of studies regarding feedback. For instance, how do researchers define online feedback? Much of what educators and students do every day may be seen as latent assessment opportunities for collecting evidence of student understanding. Hence this evidence should potentially form the

basis for feedback to students (Ruiz-Primo, 2011). Formative feedback may be considered as a process guided by selected learning objectives, where both student and educator are working towards achieving those objectives. This means that an effective formative feedback process ought to clarify the learning outcomes and the criteria to successfully meet the learning objectives. It should also compare the current learning level with the criteria of success and communicate and use the information to move the student from the current performance to the desired performance (Ruiz-Primo & Li, 2013). The formative part of formative feedback is not to be understood as such without connecting it to the learning objectives and compare the students' current performance with the desired performance as criteria of (Ramaprasad, 1983; Sadler, 1989). These feedback activities directly contribute to create high quality assessment. The impact of feedback information is determined by the degree to which the educator is able to fulfil these activities in the virtual learning process.

In this paper, the authors argue that virtual feedback must be seen as a social SFF that never ends, and a new understanding of virtual situated formative feedback is developed.

Towards a definition of situated formative feedback

Black and Wiliam (2009) claim that there are two main functions of feedback: directive and facilitative. The directive feedback tells the learner what needs to be fixed or revised and this sort of feedback tends to be more specific than facilitative feedback. Facilitative feedback provides ideas, suggestions, proposals and comments to help guide learners in their own revision and conceptualization of their learning. Formative feedback is defined as information communicated to the learner intending to modify his or her thinking or behaviour to improve learning (Shute, 2008).

We are inspired by a formative feedback framework developed by (Lukassen, 2016) inspired by Dylan Wiliam (2010) and (Ruiz-Primo & Li, 2013), which reflects an understanding that learning is primarily a social process and that learning cannot be separated from its social context. This framework puts focus on collecting assessment information and offering feedback on the complex teacher-student interactions. A complete assessment cycle must contain four activities:

1. clarifying learning goals;
2. eliciting information to check students' understanding;
3. interpreting the information collected, and
4. acting on the information collected.

The framework lays its focus on interaction and dialogue and emphasizes that educators can benefit from a closer contact to their students and a closer student – student contact. Black (2001) argues that with better interactions, educators will be in closer touch with their students' progress. Students will become more active and responsible as they become involved in expressing their thinking to their educators and their peers. Hence we adopt the concept of learning as being *situated* from the Swiss educational researcher, Etienne Wenger. Wenger's

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theory of learning is basically a social theory Situated learning implies the giving birth to a thought and action that is used appropriately in the right time and context (place).

Situated learning focus on the relation between learning and the social situations in which the learning occurs. In this approach, the content is learned through doing activities and it is dilemma driven. Wenger understands Communities of Practice as "the social fabric of learning" (Wenger, 1998; p.251) and stresses that the mechanism that makes information knowledge empowering (i.e. the very mechanism that makes it *knowledge*) is the way and the extent to which it can be integrated and operationalized within an identity of participation (Murchú & Sorensen, 2004).

Collaborative learning principles call for a perspective and functioning of group learning, while learning through COPs points to learning as an aspect of the functioning of a community of practice. They both accentuate learning as an individual and a social phenomenon, and they both argue for shared, collaborative and democratic learning efforts, stimulated through participation, engagement, motivation, and ownership (Sorensen, 2009; Sorensen, 2010; Murchú & Sorensen, 2003; Sorensen & Takle, 2002). In the learning perspective applied to this study, we view online learning as processes taking place collaboratively in what we identify as online communities of feedback practice. It changes our analytical focus from viewing the COPs as secondary phenomena in a fixed instructional plan to emphasizing the COPs themselves as the curriculum.

The situated formative feedback framework then lays its focus on interaction and dialogue and emphasizes that educators can benefit from a closer contact to their students and a closer student – student contact.

Table 1: Wiliam (2010) visualizes the concept of formative feedback as situated

The Moodle is the centre of all interactions.	Where the learner is going	Where the learner is right now	How to get there
VLE Educator	Clarifying learning intentions and sharing criteria for success in the Moodle	Engineering social online discussions and reflections	Providing directive and facilitative online feedback that moves the learners forward
Peer	Understanding learning intentions and criteria for success	Activating students as socially situated instructional resources for one another	
Student	Understanding learning intentions and criteria for success	Activating students as owners of their own learning, but their thoughts and actions are situatedly shared with the community	

ISBN 978-615-5511-10-3

The student's thoughts and reflections are always situated in the online community of practice. In that way peers and educator can provoke that the students understand the learning intentions.

Description of the master programme

The situated formative feedback is applied to a course in an online master program at Aalborg University. The aim of the program is for the students to achieve theoretical, analytic, methodological, and design competences within the scope of ICT and learning.

The objective of the course is to develop the students' own competences through collaborative and dialogic knowledge construction online, using an assessment criteria framework based on roles, developed by Murchú and Sorensen (2003) and Sorensen (2010). The students are encouraged to be active and engage in the course by contributing to the discussion forums. Before the students engage in the dialogue they will individually study texts and form smaller groups where they will be assigned a role (proposer, opponent, moderator, and commentator) used in the discussion forums. The proposer will initiate the discussion by constructing a problem which enables theory and practice. This will kick off the discussion and actively engage the other group members. The learning goal for this assignment is:

> *"… the students must obtain conceptual knowledge about learning processes that enhances quality, dialog, and cooperation in an CSCL environment." (Sorensen, 2010)*

Throughout the course, Moodle represented the virtual space in witch teachers and students could meet and cooperate. The course in Moodle contained the course syllabus, curriculum, assignments and the discussion forums. Moodle is an open source Learning Management System (LMS)/VLE. Often the terms LMS and VLE are used interchangeably with emphasis on slightly different aspects of the learning process (Weller, 2007). Here we use VLE to stress the notion of being in a virtual environment, but still with the opportunity to learn.

In general, the discussion forum provides a system for organizing messages ordered chronologically and in branches. Messages can hold text, images and other web related content. Communication in a forum is asynchronous giving student's flexibility in time and space to reflect on and articulate their thoughts at their own pace (Pena-Shaff & Nicholls, 2004). The level of social presence in an asynchronous learning network (ALN) may be considered low. Despite this, Computer Mediated Communication (CMC) includes more students by providing an environment for diverse viewpoints and equal participation, offering various ways of communicating using alternative socio-emotional content (Rice, Hiltz & Spencer, 2005).

Didactic decisions form the use of the discussion forum and may have an effect on the student's engagement in the forum. Forums may be both structured and unstructured. One way of structuring a forum could be posting a question that could spark the discussion or

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scaffold the discussion by setting up requirements for the student's participation. In an unstructured forum, the students would have more control, deciding the topic and forming the discussion. Students tend to like both structured and unstructured forums, but they find the structured forum more engaging with respect to the feedback they may receive from an instructor (Salter & Conneely, 2015). In this module, the discussion in the forum is highly structured by the teacher setting roles for participation and giving formative feedback.

Research design and methodology

Our data are qualitative and consist of transcripts from student and educator written interactions (N=120 students) in a Moodle. The underlying analytic approach in this study to construct knowledge uses a three-step radical hermeneutic model for data construction and data analysis. In the radicalization lies a rejection of ontological conceptions. Ontology is the science of the being and the ontological oriented science therefore ask into what exists (Rasmussen, 2004).

This implies that we approach our analysis on the assumption that textual analysis becomes a matter of observing the ways in which the informants (the students), observes in his text. Put more precisely, it is a matter of observing what difference the text applies and designates.

The three steps are in short defined as:

1. *Empirical construction.* In the first step, we read the transcripts with selected differences based on the concept of situated formative feedback. Readings at step one do not occur without assumptions or preconceived ideas. The text is read on the basis of differences selected by the interpreter (us). The reading of a text is not arbitrary; it is based on consciously selected differences. Reading a text based on these differences makes it possible for the interpreter to observe which differences, the text applies in relation to the interpreter's differences. This process is distinguished from a vague observation based on the text's complexity or a completely arbitrary reading (Rasmussen, 2004).
2. *Hypothetical construction.* In step two, it makes no sense to trace the results of the interpretative process back to the text. What kind of certainty would that afford the interpreter? If the results are to be examined further, they must be traced back to the selected designations in the form of differences with a view to observing what lies behind the designations. The result of research and interpretative processes is what has been observed and designated by the researcher as interpreter. Rasmussen will term this designation a hypothetical construction (Rasmussen, 2004).
3. *Reflective construction.* The third step involves an interpretation of these differences taken together. In step three, we can compare different ways of using feedback and identify possibilities and limitation in applying a full formative feedback episode in a Moodle.

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We embed these steps into the qualitative analytic program NVivo 11. This program cannot do the analysis for us but helps us to structure our data through the use of nodes. A node in this study is our selected differences in the empirical construction.

The next section will present our findings separated into these three steps.

Analysis and findings

The empirical findings are divided into three sections. First, we present the empirical construction of data where we present what the selected differences actually apply and designate about SFF. Second, we perform a reflective construction were we analyze the information from the empirical construction. Third, we construct a hypothetical construction and present perspectives based on the reflective construction. These constructions were analyzed with Nvivo and one representative discussion thread is presented. The number of participants are N=8 and number of posts or threads are N=22. In the findings, we present quotes from only representative thread and state the four roles before each quote: The proposer, the opponent, the moderator and the commentator (educator).

Empirical construction

According to the assessment cycle, the following four differences are selected: Learning goal, eliciting information, interpreting the collected information and acting on this information. Here we identify and explore our discussion thread for these differences and select a specific discussion for further analysis.

Clarifying learning goal

In the online discussion, the learning goal is addressed in the first paragraph by the *proposer*:

> *"… how is the Danish compulsory school ready to us the ICT opportunities and new educational- didactic opportunities related to collaborative online learning?"*

Eliciting information to check student understanding

After referring to the theory provided in the VLE the proposer elicits information about personal experience with the theme:

> *"I have experienced how pedagogical and didactic with online educational resources and the use of ICT have been neglected because of the technical challenges. Instead of promoting the didactic advantages, it suddenly turns into technical tutorials".*

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Interpreting the information collected

Based on the initial post by the proposer one of the opponent's reply by interpreting information from the proposer:

> *"My experience is that many online educational resources are challenged by the lack of evaluation tools that support the students in their own self-evaluation."*

And the opponent ends with the post by asking the question:

> *"…So the counterargument would be: Are the online educational resources ready for giving the best possible space for discussions between students and teachers about the students learning?"*

Acting on the information collected

After the first two posts in the thread, the educator sums up both the elicited and interpreted information:

> *"Interesting discussion about online educational resources and if they can support CSCL (ed: collaborative learning). And also on the teaches missing insight into the didactic possibilities in ICT."*

And educator asks question for further reflections:

> *"… with the use of online educational resources… do they take into consideration the students learning outcome? Is it good teaching and will the students gain from this?"*

Hypothetical construction

Based on the empirical construction the hypothetical construction will be created. We build on the presented definition of situated formative feedback, which lays its focus on interaction and dialogue in a COP. The section is structured on the three categories in Fig. 1: Where the learner is going, where the learner is right now, and how to get there.

Where the learner is going

In a COP learning is both and individual and a social phenomenon and they both argue for shared and collaboration efforts. Based on the empirical construction we recognize that the learning goal no longer a goal only owned and determined by the educator. During the elicited and interpreted information, the learning goal is shared in the COP and every role in the discussion takes on an ownership of the goal. The discussion forum facilitates a new way to share understandings and meanings regarding to a specific goal. These divergent understandings of the initially presented learning goal follow the discussion thread through

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the whole discussion. The learners (e.g. the proposer, the opponent & the moderator) move on in a collaboration community with new shared understandings of the learning goal.

These collaborate, shared and basically moderated learning goals give a foundation to identify where the learner is in the social learning process.

Where the learner is right now

In the discussion thread, the opponent responds on the initial post by reformulating what the proposer already had been expressing. The students constantly activate their shared understanding and therefore act as socially situated instructional resources for one another. This creates a solid foundation for making the feedback situated in the COP.

In the same way as the opponent, the educator (commenter) supports the shared understanding in the discussion thread by addressing the theme and calls for ongoing discussion. The educator recognizes the peer feedback as equally important as her own. Feedback is therefore viewed as shared in the COP.

How to get there

The educator sums up the learners perspectives in her own words and provides relevant feedback at the proper level by referring to earlier student perspectives and makes the feedback situated. The educator shows that she actually has read the students perspectives. The proper level is defined as feedback that is provided at the same level as the learners. An example; when the proposer reflects on practical experiences regarding the use of iPads in middle school and the educator provides feedback that follows up this practical path. Another example; where a student links theory with practice and the educator follows up this connection by proposing another theoretical concept from George Siemens that could additionally help the learner towards new levels of insights. In our definition of SFF we mentioned two aspects of feedback; Directive and facilitative. In our study, the educator lacks to provide any directive feedback. We only identify facilitative feedback. Our study lacks to identify any reasons of this. But we contemplate a concrete reason could be in the aspect of a delayed timeframe from a learners reflection to a peer or educators feedback. Directive feedback can be perceived harsh or inappropriate for the learner and could end up offending the learner. The Moodle does not support an instant chat- function and our study shows that there sometimes was more than a day from an initiated reflection to any given feedback. From this notion, it is safer to use facilitative feedback – at the proper level.

Reflective construction

The empirical and hypothetical construction gives us insight in how the notion of SFF could be applied in a Moodle. It is not in the scope of this paper thoroughly to explore all opportunities and limitations to work with the concept of SFF and to perform a full FFE at all time. We conclude this paper with a hypothetical construction; as recommendations for future teaching practice.

ISBN 978-615-5511-10-3

Recommendations for future use of SFF:

1. Students play an essential role in SFF.
2. Students and educators are equal in the COP, but holds different roles.
3. The educator needs to design online learning so learners can work and participate in groups.
4. Feedback only provided by the educator is not necessarily formative feedback. It must be situated in the shared COP.
5. Learning goals can be modified (if the current exam form calls for reflection and not essentially direct answers).
6. The students need to take ownership over the learning goals and create a shared understanding of the learning objectives…
7. A VLE may not be the proper place to use directive feedback.
8. Timing of feedback. Educators, peers and learners need to engage in the VLE discussion every day.
9. Students need to accept the shift in roles and that they need to take great responsibility in their own learning process.

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