

G.2 Timing of formative feedback in a virtual learning environment from an E-tutors perspective

Hannah Steinke¹, Sebastian Schmidt¹, Mattis Altmann¹

¹ Technische Universität Dresden

Research

One of the most important learning activities of a student at the university are collaborative activities which have a positive effect on the learning skills of students. In the last decades and especially in the last years due to the COVID-19 pandemic, there has been a huge increase in offers to learn in virtual environments. This increase led to the need for professional pedagogical support within the unique environment, which can be addressed by E-tutors. This learning facilitation role becomes increasingly important. Nevertheless, the number of concrete recommendations when interventions are needed is rare. The aim of this study is to fill the gap in the literature when the E-tutor needs to give feedback to students in higher education. The results are derived from a systematic literature review and a qualitative content analysis. The findings indicate that feedback needs to be given in a close timeframe, at best within the first two hours after a question arises.

1 Introduction

In recent years, universities have increasingly used Virtual Exchange or Collaborative Online International Learning approaches (Velinov et al., 2021). Collaborative learning activities are one of the most important learning facilitators for students. These activities have an enormous effect on the learning skills of the students in general (Slattery & Cleary, 2017). Virtual environments offer constantly growing opportunities to continue remote knowledge sharing or work remote on scientific projects (Schoop et. al., 2005; Wang et al., 2018). To meet these challenges and dimensions, the presence and implementation of E-tutors is considered as helpful. The purpose of the E-tutor role is to help the students develop new skills and improve their performance (Single & Muller, 2001). To fulfil this purpose, the E-tutor needs to have accurate information on students and a suitable timeline for communicating with them. Gaining this information in time is often an issue for the E-tutor. In such an environment, many messages as well as other activities happen synchronously and asynchronously. Considering this complexity, the E-tutor needs support in monitoring the student's engagement and thus deciding if an intervention is necessary (Alencar & Netto, 2011). In a previous study by Altmann, Langesees & Misterek (2021), timing has been identified as one of the most important determinants of formative feedback during VCL modules. To address this issue further, this study aims to answer the following questions and fill the current gap in the literature:

When are feedback interventions from an E-tutor needed in a virtual environment?

To answer this question a two-level approach was used. First a systematic literature review was conducted to find out the status of the topic. From this literature categories were built deductively to analyse real data from a university module.

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The first chapter is a brief introduction into the topic and its importance. In the second chapter a theoretical background is offered together with introductions of the basic terms. This is followed by a methodology part in which the methods used are explained. In chapter four the results from the literature review as well as from the data analysis are shown. This is followed by a chapter where these results are discussed. In the last chapter, a conclusion is offered and limitations to this study are explained.

2 Theoretical Background

2.1 Virtual Learning Environments

Virtual Learning Environments (VLE) are systems for “a system for delivering learning materials to students via the web. These systems include assessment and student tracking features, as well as collaboration and communication tools. They can be accessed both on and off-campus, meaning that the system can support students’ learning outside the lecture hall, 24 h a day, 7 days a week” Phungsuk et al., (2017).

2.2 E-tutor

The examined VCL module is supported by E-tutors who “provide orientation and interpretation aids for the tasks, feedback on team performance and determine learning progress at the group and individual level to support the final assessment of performance” (Schoop et al. 2021). As a result, the e-tutors provide relief for the module supervisor and at the same time, more intensive support for the students in solving the complex case study. Thus, they can also provide input for the evaluation of the participants (Jödicke et al. 2014).

2.3 Formative Feedback

Another important aspect is the type of feedback that is provided, for the purpose of this paper the focus is on formative feedback, which may be defined as “information communicated to the learner that is intended to modify the learner’s thinking or behaviour for the purpose of improving learning” (Shute, 2007, p.1). In this regard, feedback can have a positive effect on students’ learning behavior. However, it should be noted that several peripheral factors influence how students deal with the feedback they receive (Shute, 2007).

One of these influencing factors is the timing of the feedback as identified in Altmann et al. (2021), which will be investigated as the subject of this work.

3 Methodology

To answer the research question, a two-method approach was chosen. First, a systematic literature review was conducted followed by a content analysis from real module data.

3.1 Systematic Literature Review

To find out the topic's status, a systematic literature review was done in simplified form according to Okoli & Schabram (2010). For this, different search strings were built and applied in Google Scholar. Furthermore, the following limitations for the search were applied: Only papers in German and English language were considered and they had to be published between 2018 and 2022, to provide an insight into the status and advancements within the field. After this application of the developed search string "Timing of feedback in virtual environments and E-tutor perspective" 561 papers were left. A further reduction was done by checking the titles and the abstract. This led to the full investigation of 22 papers for this study, which were determined as fitting based on the simplified method by Okoli & Schabram (2010). From these papers categories were built deductively and applied for the content analysis of the module data.

3.2. Data Analysis

As a second method, a data analysis was chosen. The examined data is from a bachelor university module which was conducted during the winter semester of 2020/2021 between the TU Dresden and the HTW Dresden. The data which is under investigation was extracted from the collaboration platform and includes every interaction which happened during the module. To investigate this data a content analysis according to Mayring (2010) was done. For this the following categories and codes were deductively built based on the literature review:

Table 1: Category and Coding System

Categories	Codes
A: Positive impact of provided feedback	A 1: Helpful/ motivating
	A 2: Fast response
	A 3: Constructive
B: Negative impact of provided feedback	B1: Frustrating
	B 2: Delayed response

There are two categories, the first category A represents the positive effects which the E-tutor feedback can have. This can then be split down into different codes for example code A3 represents when the E-tutor gave feedback in a constructive way.

The second category B represents the mistakes and negative aspects which the feedback giving from the E-tutor can have. This can be broken down into different codes as well. For example, code B2, stands for a delayed response of the E-tutor which is not received well by the students.

The topic of the analysed module ,was the development of e-mobility concepts for the city of Dresden. It took place during the start of the COVID Pandemic and was held via the platform Microsoft Teams. 79 students participated and were divided into 12 groups which had to communicate virtually via the platform and complete tasks every week. The module was held in German language. Each group had an E-tutor to support them. He was supposed to help with the group work in general, with the platform and give feedback on their performance regarding his area of expertise. Since the amount of data was enormous, only the content of four randomly selected groups was investigated.

4 Results

The following paragraphs represent the results of the study. First the results from the literature review followed by the results of the data analysis.

4.1 Results Literature Review

Within the literature there is a mutual understanding of the E-tutor role in general. In most of the papers the importance of the role of the E-tutor is pointed out and that his importance will keep rising (e.g., Ní et. al., (2019)).

The report from Ní et. al., (2019) points out that due to the huge differences between offline and online teaching the roles of the teachers and tutors also are different. They need to be equipped to teach effectively especially in a higher education context (Ní et.al., 2019). Within the report it is also acknowledge the importance of feedback giving and the affect this has on student performance. The feedback which is given in a short amount of time after the event has a motivating effect on the students (Hoska, 1993). Thus, it is mentioned that the motivation of the students is rising if the feedback is provided in a timely manner and is of high quality. This quality feedback should then include constructive criticism, clearing of misunderstandings and offer further information (Abdous, 2011; Corfman & Beck, 2019). This is also confirmed by other Alencar and Netto (2011), they also mention the need for immediate feedback as well as the needed information for the E-tutor so he can give this feedback. They also point out that the lack of adequate information is often an issue for the E-tutors and are typical for these virtual environments. Berge (2008) already mentions that innovative technologies do provide new opportunities of giving feedback. One of these opportunities can be the use of (chat)-bots for example. They can help reduce the work for the E-tutor and remind students of deadlines (Alencar and Netto, 2011).

Nevertheless, many studies suggest the importance of knowledge regarding the used platform in which feedback is provided, as well content knowledge regarding the topics which the students are working on (Coker, 2018; Dunlap & Lowenthal, 2018; Edwards et al., 2011; Goold et al., 2010; Meyer & McNeal, 2011; Smits & Voogt, 2017).

4.2 Results Data Analysis

The results from the data analysis are in general similar in each group. All groups had an overall positive relationship with their E-tutor and communicated great satisfactory with them. The following figure shows how often the distinct categories and codes were mentioned within the four investigated groups.

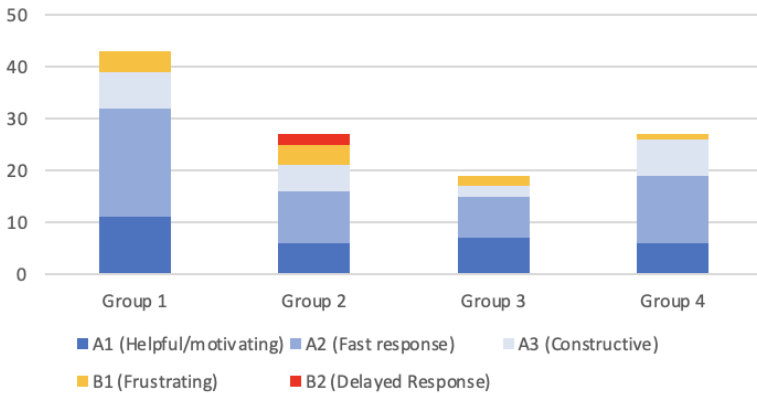


Figure 1: Results of Data Analysis

As shown in each group the E-tutors mostly responded in a short amount of time to the questions they were asked by the students. Also shown by the data is that than a lot of the time the comments and answers of the E-tutors were seen as helpful. Furthermore, the code A3 for constructive was also mentioned several times in each group. Especially in the first group.

Looking at the negative categories the picture is different. The E-tutors are rarely seen from a negative side. The code B1 is overall mentioned only eleven times. And in group four only once. And code B2 was only mentioned in group two and only twice as well, so there were hardly any delays in the answers of the E-tutors.

These results from the literature review as well as from the data analysis will be discussed and compared in the following discussion.

5 Discussion

As shown in the previous section there are some intersections between the results based on literature and the investigated data, but it has also shown, that there are many areas on which there are differences between the data and the suggestions by the literature. In the following these similarities and differences will be discussed.

Starting with the similarities, the literature is mostly agreed on that an important part of giving feedback in the virtual environment is that this feedback should be giving briefly after an event or after a question has been raised (Alencar & Netto, 2011). The data from the module confirms these statements. Most of the time the E-tutor responded within minutes or two hours after a question. This was seen positive by all groups and appreciated as communicated in group one for example “thank you for the quick response” (group 1). This quick response had a positive aspect on the groups since they could continue their work with the answers in a timely manner.

The literature also stated that when an E-tutor gives feedback it should be given in a constructive way and include examples (Abdous, 2011; Corfman & Beck, 2019). As the random sample of groups show this was also under consideration when the E-tutors gave feedback to their students. Often, the first section of the feedback consisted of a positive and complementary comment regarding the groups progress. Then the E-tutors gave them hints on how they even could improve their group work and use the platform better. To give them examples one E-tutor even attached a screenshot so that it would be easier to understand for the students what the E-tutor meant. This type of feedback was well received by the groups and in all cases also presumed.

As mentioned before there are also differences between the literature and the data from the groups, due to the learning format of a complex case study. For example, the literature points out that it is important that the E-tutor should also have knowledge on the content on which the group is working on. This criterion was not fulfilled in the module and sample groups. Students had content related questions which the E-tutor could not answer, this led to some frustration and to delays on working on the tasks.

Another aspect mentioned by (Schoop et. al., 2005; Wang et al., 2018) are the new opportunities which recent technologies, such as platforms like Microsoft Teams offer. These opportunities are used by most of the students in our sample groups. They do their entire project on the platform. But what is hardly mentioned in the literature is the importance of the platform and systems running smoothly to not frustrated the students. In the groups there was once an issue with the platform and files could not be uploaded. This led to frustrations and insecurities on how to meet deadlines and present the results. This also was difficult for the E-tutors since they were not sure on what to do in this situation.

This also led to the mentioning of frustration in all analyzed groups. Nevertheless, the communication of the E-tutors and the help und assurance that this will not affect the grades of the group was received as helpful. In this scenario it was particularly important that the E-tutors responded quickly, which they did. This was highly appreciated by the groups.

In general, the literature focused a lot on the training and skills which an E-tutor needs to have and not a lot on when he than needs to interact with the students (e.g., Ravioli et. al, 2022; Motaung and Makombe, 2020).

The last paragraph will offer a general conclusion, discusses the limitations of the studies, and gives an outlook on further research.

6 Conclusion, limitations, and further studies

The findings in the study show that giving feedback in virtual environments is of high importance. Feedback will, when given appropriately, increase the performance and motivate the students. Considering virtual environments, the role of the E-tutor is of high relevance. This is shown by the literature as well as the data from the module. At this point in time the literature focuses on the new skills which an E-tutor needs to have and how he can gain these competencies. This is always in comparison to an offline environment. It is only rarely mentioned that the timing of the feedback and the interventions is important. This was exactly the research gap that this study tried to close. The data from the module showed that the timing of feedback is of high importance to the students. It helps them to continue their work and performed at their best. The data revealed that a fast response to questions is the key. When the response time was delayed this led to frustration and further delayed responses by the students. One tutor also gave feedback and reminded students those deadlines were coming up, which was also seen as helpful. This can be interpreted that proactive feedback and interventions of an E-tutor is also helpful and appreciated. What this study also showed that not only the timing of feedback is important but content as well. It is hard to separate these two from another. Constructive feedback with examples was well received and mostly presumed by the groups. The answer to the research question can therefore be given with that the feedback should be given as soon as possible. The data showed that if a question is asked the response of the E-tutor should be within two hours to be received positively.

Keeping this in mind it is also important to understand the limitations of this study. Since the current literature focuses on the role of the E-tutor and his skills the gap of literature is still noticeably big and this paper can only be seen as a starting point. From the existing literature there are only basic understandings drawn to build the categories. Taking other and new papers into account there might be distinct categories which could be drawn.

Nevertheless, this study can be seen as a starting point for further research on this topic. In the future it will be interesting to investigate on how E-tutors can be supported more with technology to gain all the information they need to give appropriate feedback. Also, of interest could be if the feedback giving process can be supported by for example bots.

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