Digital Pedagogy for Enhanced Social Qualities, Collaborative Processes and Quality of Learning

Nicholas Mavengere$^{(\boxtimes)}$ and Mikko Ruohonen

University of Tampere, Tampere, Finland
{nicholas.mavengere,mikko.j.ruohonen}@uta.fi

Abstract. The best learning environment that enables excellence should always be sought. This research seeks to draw measures to promote virtual learning experience based on promotion of social interaction and collaborative processes. The research is based on a total virtual learning experience of a masters' level information and communication technology for development (ICT4D) class at the University of Tampere. A questionnaire was conducted at the end of the course to assess social qualities, collaborative processes and qualities of learning. The research seeks to promote quality learning by developing a social and collaborative learning environment. The results of this study included measures, such as, pedagogical techniques and technological tools that could foster such an environment.

Keywords: Digital pedagogy · Social qualities · Collaborative processes · Quality of learning

1 Introduction

There are increasing opportunities for information technology (IT) applications in education. Chou and Liu [1] noted the significant transformation in the learning and teaching process because of the web-based technology. Digital pedagogy involves the use of technology in enhancing the learning process. The value of digital pedagogy is derived from attempting to fully enjoy the benefits of technology in learning. The advantages of technology in adoption for learning could be summarized as "learning any time" and "learning anywhere" and thus self-control, independent thinking, diverse viewpoints and diffuse thinking models [1].

As much as we appreciate the advantages of technology in learning as presented above, there are also disadvantages that we should put efforts to minimize. Disadvantages, such as, possibility of students feeling isolated thus leading to anxiety and confusion thus reducing learning effectiveness [1]. Hence, as we adopt learning technologies we must try to maximize the benefits gained and reduce the negative impacts [2]. Digital pedagogy plays a crucial role in doing that. Spiro [3] defined digital pedagogy as "engaged and reflexive practice and scholarship of teaching and learning through digital technologies". Typical features of digital pedagogy include [3]:

- Combining theory and practice, making and thinking
- Fostering creativity, play and problem solving
- Encouraging participation, collaboration and public engagement
- Aiming to increase critical understanding of digital environment

In this research, we seek to promote virtual learning by making use of digital pedagogy that enhance social qualities, collaborative processes and quality of learning. Kreijns et al. [4] advocated for sociability in virtual environments for enriched learning experience. Sociability is defined as the extent to which a virtual environment is "perceived to be able to facilitate the emergence of a sound social space with attributes as trust and belonging, a strong sense of community, and good working relationships" [4]. This would foster collaboration processes and qualities of learning. Thus, the research question is: how could digital pedagogy promote social qualities and collaborative processes for learning quality?

In the next section the theoretical background is elaborated. After that, the methodology is specified then the results are noted. The discussion section follows and finally conclusion.

2   Theoretical Background

Kreijns et al. [4] argue the need to consider and integrate social factors for successful virtual learning. Disregarding social psychological processes, such as, starting groups and sustainable social relationships could lead to failure of virtual learning. In fact, it is essential to promote social interaction in virtual learning environment, in that it reduces loneliness and isolation. As shown in Fig. 1, Kreijns et al. [4, p. 180] suggest that sociability influences social interaction, "the greater the sociability of an environment, the more likely it is that social interaction will take place and that it will result in the emergence of a sound social space". They defined social presence as "the perceived degree of illusion that the other in the communication appears to be a real physical person in either an immediate (i.e., real time or synchronous) or a delayed (i.e., time-deferred or asynchronous) communication episode". Pedagogical techniques depending on the contents of the course also promote social presence and interaction.

We should always strive for the best. There are fundamental aspects of learning, referred to as quality learning which we should always seek to achieve. These are the cornerstones which technology could aid to build upon to foster the learning process. The following qualities of learning are suggested [5, p. 293];

1. Active - Learners' role in learning process is active; they are engaged in mindful processing of information and they are responsible for the result.
2. Constructive - Learners construct new knowledge on the basis of their previous knowledge.
3. Collaborative - Learners work together in building new knowledge in co-operation with each other and exploiting each other's skills.
4. Intentional - Learners try actively and willingly to achieve a cognitive objective.

5. Contextual - Learning tasks are situated in a meaningful real world tasks or they are introduced through case-based or problem-based real life examples.
6. Transfer - Learners are able to transfer learning from the situations and contexts, where learning has taken place and use their knowledge in other situations.
7. Reflective - Learners articulate what they have learned and reflect on the processes and decisions entailed by the process.

These learning qualities were evaluated in the survey, which was conducted in the ICT4D course. This was done in order to adopt technological tools and pedagogical practices that promote the above-mentioned qualities of learning. Please see methodology section below for more information about the survey.
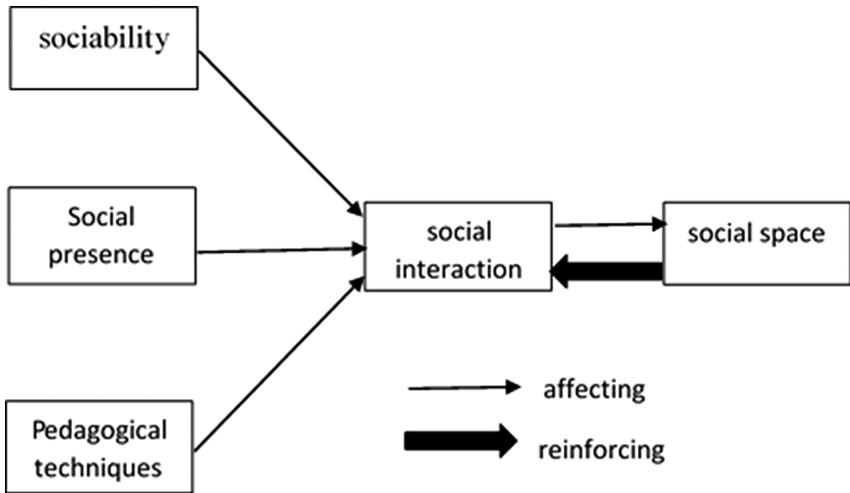

Fig. 1. Relationships between the variables sociability, social presence, pedagogical techniques, social interaction, and social space. Adapted from [4].

We suggest that digital pedagogy supported by social interaction and collaborative processes could create a learning environment that is conducive for enhancing qualities of learning as shown in Fig. 2. The qualities of learning reinforce the environment that is social and collaborative.

Illeris [6] suggested the three dimensions of learning and competence development as content, incentive and interaction as shown in Fig. 3.
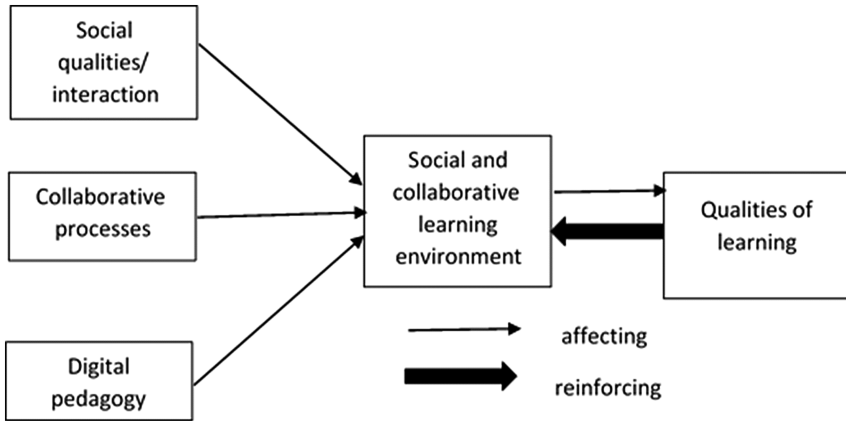
Fig. 2. Qualities of learning enabled in a social and collaborative learning environment tentative conceptual model
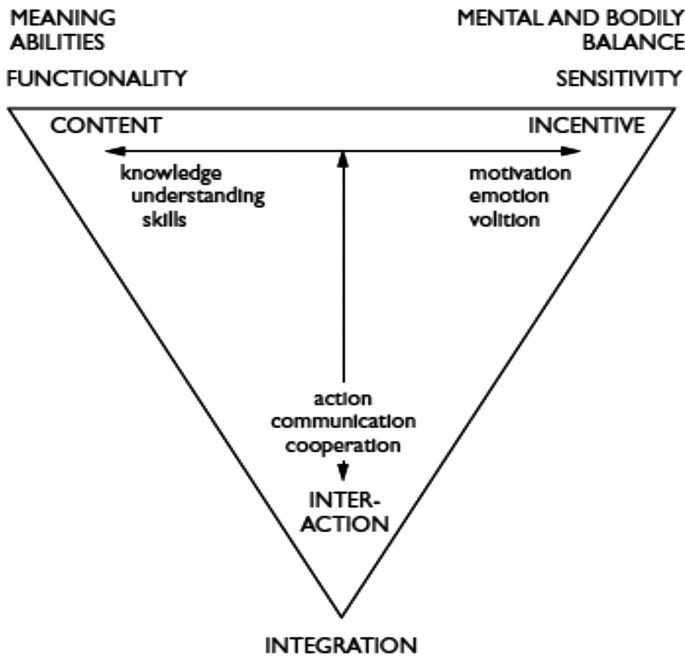

Fig. 3. The three dimensions of learning and competence development [6]

Content dimension is what is learned, for example, knowledge and skills. Incentive dimension is source of the mental energy that is essential for the learning process, such as, motivation and emotions. These two dimensions are initiated and cemented by the interaction process. These dimensions of learning are an elaboration of the social and collaborative learning environment shown in Fig. 2.

3   Methodology

The University of Tampere hosted an international virtual course with students from Finland, Germany, and South Africa. The course topic was Development 2.0, that is, Information Communications Technologies for Development 2.0. The course comprised of 33 participants who had diverse virtual learning experience as illustrated in Fig. 4. About 50% of the participants had 5 or more times of virtual learning experience.
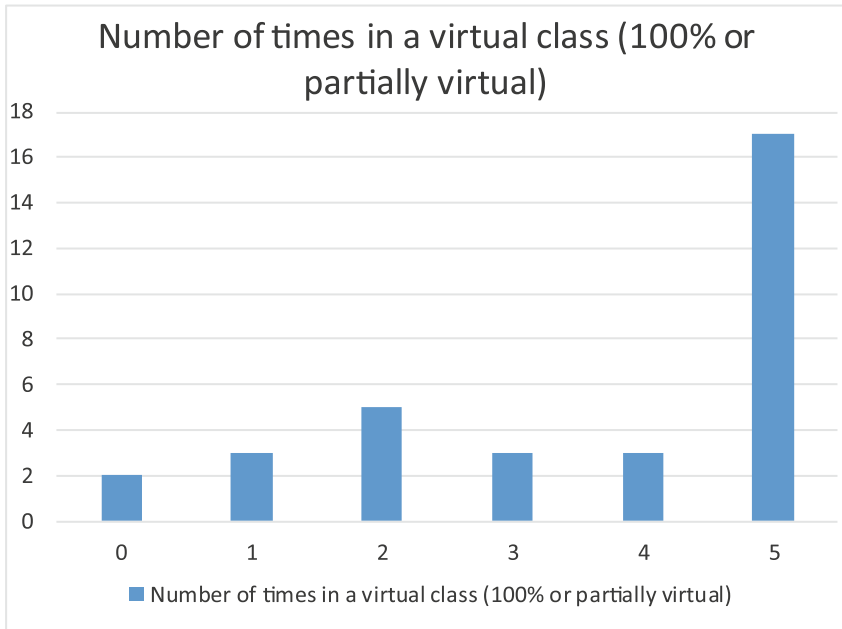

Fig. 4.   Virtual learning experience

A survey was conducted at the middle and end of the course. The objectives in conducting the survey included assessing the virtual learning experience for the class and adopting measures, that is, pedagogical practices and technology tools to enhance virtual learning. This was done to improve the learning process the next time the course is offered.

4   Research Findings/Results

The study seeks to highlight how pedagogy in a virtual environment could be enforced to promote social qualities and collaborative processes for quality learning. In this section, we highlight results from the ICT4D course. These results are context dependent [7] in that the reflections of the participants could have been strongly influenced by factors, such as, study topic but nevertheless there are lessons that could be drawn that are useful for the wider audience interested in virtual learning.

4.1   Social Qualities

The measures of social qualities namely, loneliness, good impression of others and spontaneous informal conversation in the online course environment reflects a moderate satisfaction as shown in Fig. 5. Although a significant percentage of participants, 37.5% highlighted that they feel loneliness in the course environment.
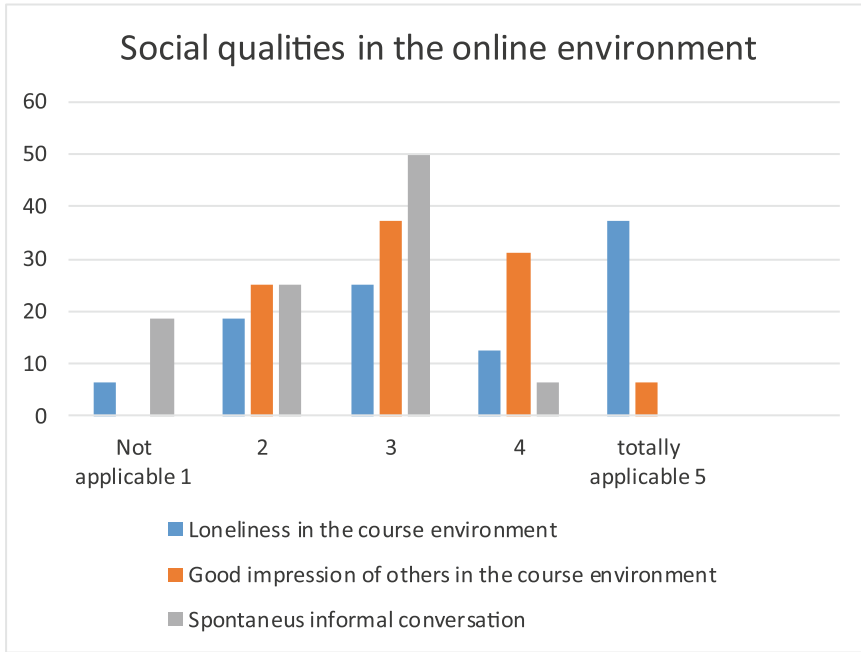

Fig. 5.   Social qualities in the online environment

The interaction enabled by the course environment measures, these are, course environment enabled comfort, non-task related conversion and friendship development were deemed to be not applicable by the course participants as shown in Fig. 6. This is especially so for the perceived friendship development enabler by the course environment in which 68.8% of the course participants perceived it not applicable.
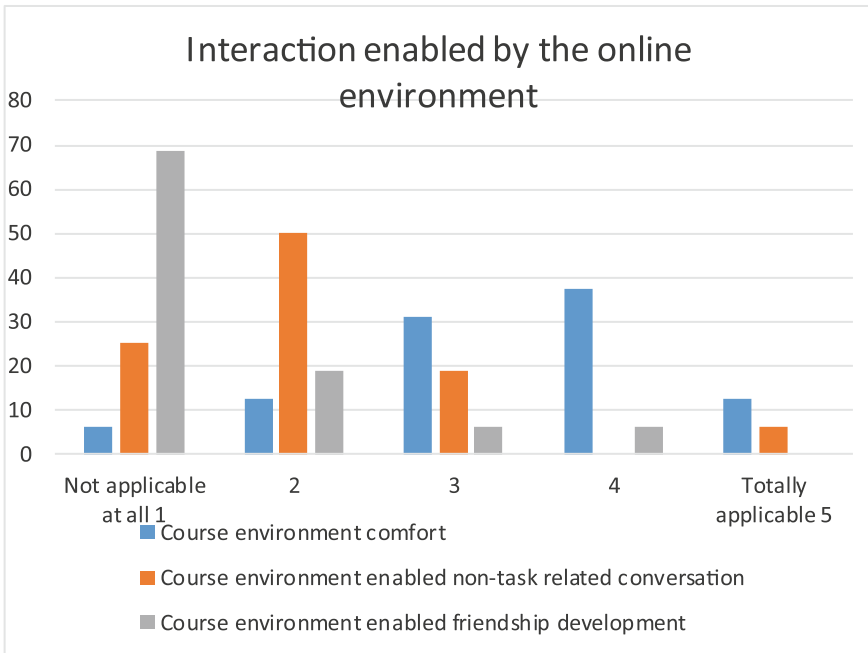
Fig. 6. Interaction enabled by the online environment

4.2   Collaborative Processes

Figure 7 shows that the collaborative processes were not well supported by the course environment. Collaborative processes measures, such as, course environment as enabler of team development and good work relationship among participants had 37.5% and 50% respectively which were the highest at second applicability.
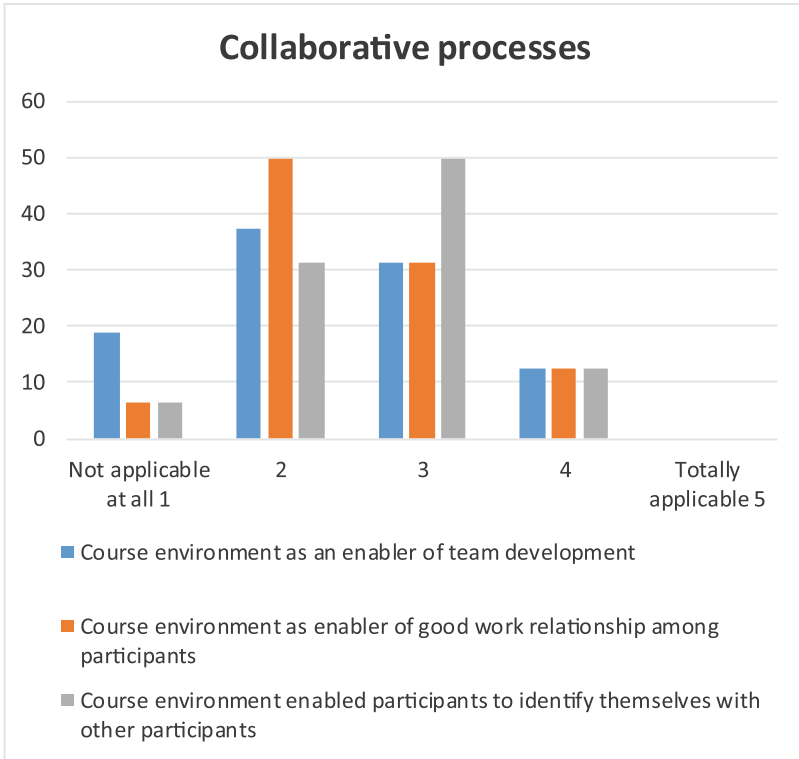
Fig. 7. Collaborative processes

4.3 Quality of Learning

The qualities of learning proposed by Ruokamo and Pohjolainen [5] were also evaluated at the middle and end of the course as shown in Fig. 8. Some qualities of learning were perceived to have increased from middle to end of course, such as, active, collaborative and reflective learning. However, some qualities, such as, collaborative, intentional, conversational, contextualized and transfer learning were perceived to have decreased.
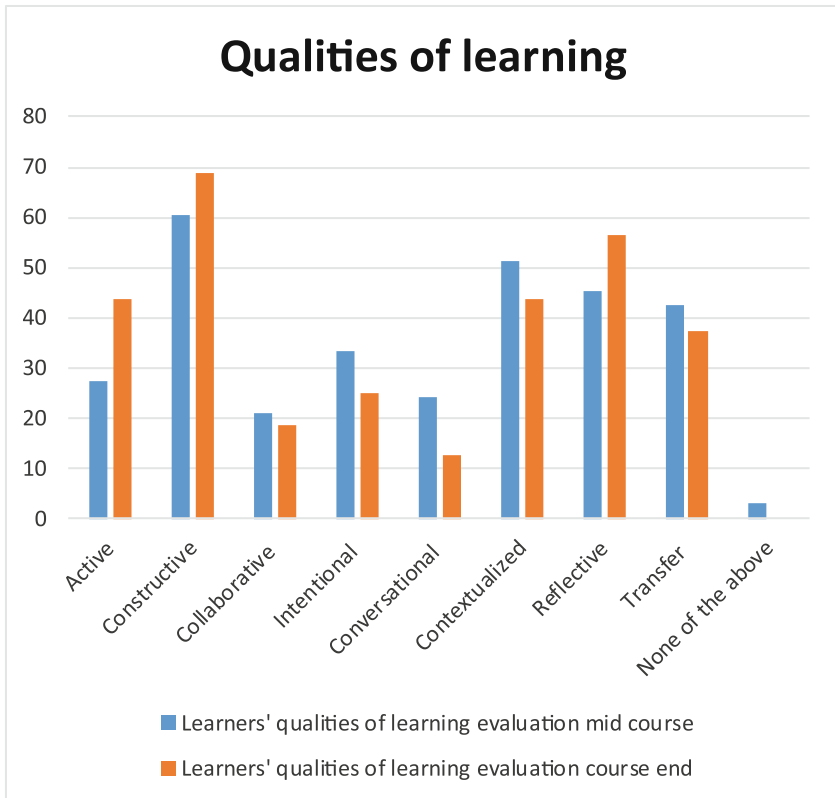
Fig. 8. Qualities of learning evaluation

5   Discussion

The use of technology to promote learning is not new, for example, in the 1990s Leidner and Jarvenpaa [8] advocated for technology inclusion to improve business management school. However, the advance in technology calls for constant research to improve how technology is incorporated in learning. Thus, this research seeks to highlight digital pedagogy that promote social qualities, collaborative processes and quality of learning in virtual learning. However, we would also bring to light the potential confliction between social qualities promotion and learning outcomes. That is to say, as we achieve social aspects this could limit or loose focus from the desired learning objectives. Therefore, there has to be an analysis of promoting social qualities that are in line with learning process and thus delivering positive learning outcomes.

Digital pedagogy, such as, embracing techniques that promote social qualities and collaboration like online open learning diaries could be used to create a social and collaborative learning environment. Open learning diary is a reflective essay, which students share with the rest of the participants in a virtual learning environment. This promotes interaction as students comment and discuss experiences. The value of

interaction in learning is well emphasized, both in research and in practice [9]. In doing so, collaborative processes are enabled from this sharing of background knowledge of fellow participants. Technological tools, such as, wikis, blogs and discussion forums could also foster the desired social and collaborative learning environment. For example, in the development 2.0 course students were grouped into teams of 3 or 4 participants and each team wrote a page summary of a course book and together developed the book wiki. This wiki development fostered social interaction and collaborative processes with the aim of promoting qualities of learning.

6   Conclusion

Excellence should always be sought in learning. In this research, this excellence has been defined based on the qualities of learning, namely, active constructive, collaborative, intentional, contextual, transfer and reflective learning. In addition, technology advances offer another avenue in promoting learning. To do so, digital pedagogy has to be set to promote the desired factors that promote qualities of learning. In this research, a social and collaborative learning environment is proposed as the conducive environment to be fostered as a platform for quality learning promotion.

The research seeks to promote quality learning by developing a social and collaborative learning environment. A conceptual model is developed in this research to highlight how qualities of learning are enabled in a social and collaborative learning environment. In practice, in the case study conducted, there were diverse results (some positive and some negative) in the qualities of learning pointing to the fact that efforts need to be made to specifically try and improve each of the qualities of learning, namely, active constructive, collaborative, intentional, contextual, transfer and reflective learning.

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