The effectiveness of e-tutoring in an open and distance e-learning environment: evidence from the university of south africa

Suné Maré & Ashley Teedzwi Mutezo

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Suné Maré [ID] and Ashley Teedzwi Mutezo [ID]

Department of Finance, Risk Management and Banking, University of South Africa, South Africa

ABSTRACT

Unisa has embraced the use of online learning and e-tutoring as a new approach to teaching and learning in an ODeL environment. According to the Community of Inquiry Theory, a learning community is important to enhance the social, cognitive and teaching presences for online learning to achieve student success. Online e-tutor and student interaction could provide a learning community environment that reduces the feeling of isolation and may improve student performance at an ODeL institution. The aim of the study is to determine the effectiveness of e-tutoring with regard to student performance in the Department of Finance, Risk Management and Banking in order to enhance student success. Two groups of students were tested; those who participated on e-tutor sites and those who did not and data for five modules were collected. Examination scores of participating and non-participating students were statistically tested to determine whether there were significant differences in performance between the two groups. The results indicated that students who engaged on e-tutor sites had performed better than those who did not, which affirmed the effectiveness of e-tutoring as a student support programme in the Department. The results should assist other ODeL universities to enhance student support through active e-tutoring.

Introduction

Student engagement at the University of South Africa (Unisa) is increasingly taking place using an online learning environment. As an open and distance e-learning (ODeL) institution, Unisa has embraced the use of e-tutoring as a new approach to online teaching and learning which may enhance student interaction and consequently performance. Recognising that distance education can be a solitary pursuit, the university launched an integrated e-tutor model in 2013 as one of its student support programmes to enhance student success, reduce student drop-outs, increase qualification completion rates and motivate life-long learning (Segoe, 2014).

Research has shown that online students are positive about their studies, particularly with regard to convenience in terms of independence of location and time (Li & Irby, 2008). Furthermore, a study by Sulčič and Sulčič (2007), found that good-quality online

CONTACT Suné Maré ✉ mares@unisa.ac.za ▣ Department of Finance,Risk Management and Banking, University of South Africa

tutoring support services could improve online students' performance. Nevertheless, this mode of delivery has its downside in the form of a negative effect on attrition or dropout rates. Empirical evidence shows that distance education students are more likely to drop out than full-time face-to-face students (Nsamba, 2016; Patterson & McFadden, 2009; Sulčič & Sulčič, 2007; Tait, 2014). According to Tait (2015), student success rates are widely reported to be lower for part-time students than for full-time face-to-face students, and within the part-time cohorts, students studying in ODeL programmes generally do worse in terms of completion of a qualification. Although there are online students who drop out of their programmes for reasons specific to the individual student such as work commitments and ill health, research has shown that feelings of isolation, disconnectedness, and problems with technology are common reasons for the high drop-out rates (Sulčič & Sulčič, 2007; Willging & Johnson, 2009). Research further shows that online students also have higher expectations regarding interaction with the teaching staff than full-time face-to-face students (LeBay & Comm, 2004; Li & Irby, 2008). Full-time students have many opportunities to engage with their peers in the course of their daily activities on campus in addition to direct interaction with the teaching staff.

Coates, James, and Baldwin (2005) observed that learning technologies have positive effects on teaching practices and student engagement. Despite the physical separation between students and teaching staff, online activities, multimedia tools and discussion forums have been reported to increase emotional engagement in the e-learning environment and to be capable of providing the requisite elements for a community of learners (Chih-Yuan Sun & Rueda, 2012). Zhao and Kuh (2004) found that students who participate in a learning community characterised by chat sessions and discussion forums are more engaged with their learning, leading to positive student outcomes and satisfaction. Tait (2014) further states that information and communication technology (ICT) makes student-to-student and student-to-teacher interaction easier; therefore, ODeL institutions should strive to develop their ICT infrastructure to enable the integration of student support functions with curriculum and assessment development. Learning technologies simplify and simultaneously intensify the learning activity for students by enabling students to download educational resources to mobile devices, sharing information with peer students and partaking in discussion forums (Krasnova & Demeshko, 2015). Furthermore, Fleckhammer and Wise (2011) report a decline in attrition rates of online students from 28% to 20% as a result of engagement in chat and discussion forums. Thus, the engagement of tutors or teaching assistants who complement existing teaching staff provides a learning community environment that might potentially be one way of bridging the distance experienced by students studying at an ODeL institution.

Based on the importance of an online learning community environment, the aim of the study is to determine the effectiveness of e-tutoring with regard to student performance in the Department of Finance, Risk Management and Banking in order to enhance student success.

Theoretical framework

In an online e-learning environment, social presence is very important because it emphasises the ideas of social interaction, the significance of meaningful relationships and connecting with people despite their geographical distance. According to Garrison,

Anderson, and Archer (2000), if a student is able to communicate purposefully in a trusting environment and develop interpersonal relationships within his or her knowledge and learning community, deep learning will take place. The proposed study was based on the social constructivism theory of learning which originated from Garrison's Community of Inquiry Theory (Garrison et al., 2000).

Social constructivism theory

The social constructivism theory of learning is described as the knowledge that is constructed within social contexts through interactions within a knowledge community (Swan, 2010). According to Swan (2010), the theory was first developed by Vygotsky (1978), and over the years, it was extended by a number of researchers, such as Brown, Collins, and Duguid (1989). According to Anderson and Dron (2011, p.84), *'social-constructivist pedagogy acknowledges the social nature of knowledge and of its creation in the minds of individual learners'*. According to these theorists, a teacher's role is to guide the learning process while learners create knowledge through interaction, and integrate it with existing knowledge. Anderson and Dron (2011) identify three levels of social constructivism during the learning process, namely cognitive, social and teaching presence, which is based on the Community of Inquiry (CoI) framework developed by Garrison et al. (2000). This framework indicates that all three presences need to occur concurrently during online learning, hence learning experience in the intersection in Figure 1 below. The interconnected components are described as follows:

- **Cognitive presence**: The extent to which learners are able to construct and confirm meaning through course activities, sustained reflection, and discourse.
- **Teaching presence**: The design, facilitation and direction of cognitive and social processes to realise meaningful and educationally worthwhile learning outcomes.
- **Social presence**: The ability of participants in a community of inquiry to project themselves socially and emotionally as real people through the medium of communication (Anderson & Dron, 2011).

Therefore, the three presences have to be present for the learning experience to be achieved. This has been emphasised by Moore (1993) in his theory on interactions (student-student, student-teacher, student-content). According to Moore (1993), the combination of these three interactions is vital for learning to occur.

Saadatmand, Hedberg, Abjornsson, and Kvarnstrom (2017) also explain that the CoI framework considers learning in an online environment, which requires learners to be actively engaged with the instructor, other learners and content to achieve meaningful deep learning. The CoI presences imply that there should be some form of interaction or online collaborative learning (as shown in Figure 1), for example, the teaching presence refers to interaction with instructors, cognitive presence relates to interaction with the content, and social presence refers to interaction with other learners (Saadatmand et al., 2017). According to Harasim (2012, p.90), online collaborative learning (OCL) *'provides a model of learning in which students are encouraged and supported to work together to create knowledge, to invent, to explore ways to innovate, and, by so doing, to seek the conceptual knowledge needed to solve problems rather than recite what they think is the*
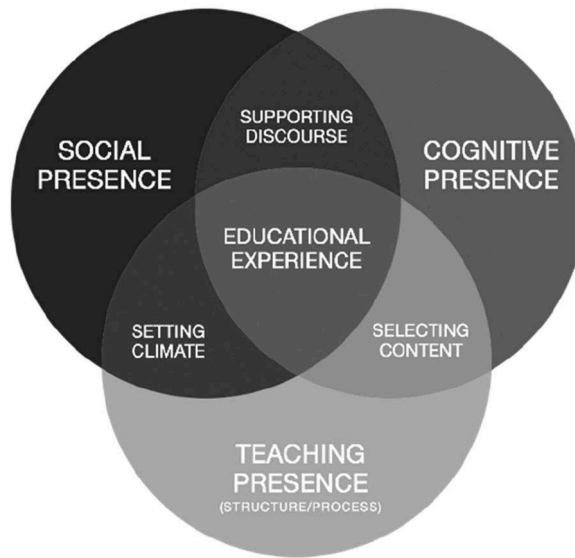
Community of Inquiry

Figure 1. Community of Inquiry Framework describing each presence (Garrison et al., 2000).

right answer'. Learning needs to include conceptual learning and knowledge building which should be based on the norms of the discipline (Harasim, 2012). Based on these three social constructivism levels and the CoI framework, it is evident that an online learning environment also needs to incorporate online collaborative learning and community of practice (Bates, 2015).

Harasim (2012), also states that the role of the teacher or teaching assistant is seen as critical, not only in facilitating the teaching process and providing appropriate resources and learner activities that encourage this kind of learning, but also, as a representative of a knowledge community, by ensuring that the core concepts, practices, standards and principles of the subject domain are fully integrated into the learning cycle.

Wenger-Trayner and Wenger-Trayner (2015) describe a community of practice as members of a community informally bound by what they do together and by what they have learned through their mutual engagement in these activities. Lave and Wenger (1991) model of situated learning suggests that learning comes from being involved and participating in a community of practice (Binns, 2017). Wenger-Trayner and Wenger-Trayner (2015) highlight that the following three criteria are crucial in establishing whether a community of practice exists:

- domain – refers to a shared domain of interest and competence that discerns members of the community from other persons;
- community – within this community, members share information, they learn from one another, and they foster mutually informative relationships; and
- practice – members of a community of practice are not just mutually interested in something; they practise it too. In doing so, they share resources, experiences and tools that enable them to execute activities.

The above, all emphasise the importance of presence in the learning process. Firstly, the presence of the teacher whose responsibility is to guide the learning process and activities; secondly, the learners who interact with one another with the purpose of constructing knowledge in the process of learning; and lastly the interaction between learners and the content, which includes collaborative learning. These are all assumed to be evidence to show that collaborative learning is taking place within a community of practice.

'Teaching presence' is defined as the design of teaching and learning materials and the facilitation of learning (Anderson & Dron, 2011). In the current study, 'teaching presence' refers to using the *myUnisa* online learning platform and online interaction between the e-tutor and the student. Teaching presence ensures that student–e-tutor interaction is focused and takes place in small groups that afford optimal participation for each student to achieve the set learning outcomes. Social presence, in the Unisa context, requires that the e-tutor create a favourable online environment so that students can project themselves socially and emotionally through the *myUnisa* platform as they communicate and construct meaningful knowledge. Cognitive presence is a way of supporting students to understand what is being taught through learning tasks thereby enabling students to develop their own independent learning skills.

The primary objective of the study is to investigate the effectiveness of e-tutoring in the Department of Finance, Risk Management and Banking at Unisa as determined by the examination results of students. In this respect and in-line with the available literature, this study tested the hypothesis that students who interact with their peers and e-tutors on e-tutor sites perform better in examinations than non-participating students. It was acknowledged that all students interact with their teachers on the online teacher site despite being allocated to e-tutors. However, the hypothesis implied that those students who also engage on e-tutor sites should perform better than those who limit their interaction to their teachers either directly or through the online teacher site.

Context

The university

The purpose of this study is to determine the effectiveness of e-tutoring in the Department of Finance, Risk Management and Banking at Unisa, an ODeL learning institution. E-tutoring is the delivery of teaching and learning online via the Internet. Unisa (2018) describes e-tutoring as organised interactions between students and e-tutors during online teaching. Unisa introduced e-tutoring in all undergraduate learning programmes by grouping 200 students with one e-tutor, thus integrating support that is potentially accessible to all students, irrespective of their geographic location (Nsamba, 2016). This system was implemented to support module teachers with a large number of students in an online learning environment. The module teacher is the person who is responsible for presenting the module to students. He or she evaluates the module and develops the study material, examination papers and assignment questions. An e-tutor, on the other hand, is there to assist the module teacher with the teaching and learning of online modules with a large number of students. The e-tutor, who is an expert in his/her own right, assists with the facilitation of the module.

Online learning and e-tutoring are offered via the *myUnisa* platform, which makes use of tools such as discussion forums, announcements, self-assessments, additional resources and web content for teaching and learning. E-tutoring is both synchronous and asynchronous. All students can post messages instantly and get immediate feedback from fellow students and their e-tutor via the *myUnisa* discussion forum. E-tutoring provides students with resources for learning, and it is hoped that this approach will assist students to develop self-reliance, useful ways to process information, teamwork and collaborative learning, communication skills and responsibility for their own learning (Unisa, 2018). Research studies (Chien, Liao, Walters, & Lee, 2016; Jiménez, Rodríguez, & Vidal, 2017; Klimova & Poulova, 2011; Kopp, Matteucci, & Tomasetto, 2012; Krasnova & Demeshko, 2015) have shown that e-tutoring plays a pedagogical, intellectual and academic role by providing probes and questions for discussion. It also plays a social learning role by involving a student-friendly social environment for interactive learning as well as to help overcome feelings of isolation and lack of motivation. It is against this background that the current study sought to evaluate the effectiveness of e-tutoring at Unisa.

At Unisa, e-tutoring is facilitated by e-tutors or teaching assistants. These are qualified experts who are practitioners and specialists in the subjects in which they are appointed to be e-tutors (Unisa, 2018). This is consistent with Kiran, Majumdar and Kishore (2012, as cited by Bear & Jones, 2017), who believe that it is important to appoint an e-tutor who is also a practitioner or specialist in a specific subject field. Furthermore, e-tutors are drawn from other educational institutions, public and private organisations, and are appointed as independent contractors to work on a part-time basis (Unisa, 2018). They are sourced nationally in South Africa as they work on a virtual platform from anywhere in the country. Before an e-tutor is appointed, he or she goes through a generic assessment to evaluate his or her ICT skills, and the candidate completes a subject-specific portfolio, which is evaluated by the module teacher. This is supported by Kopp et al. (2012), who state that e-tutors need to be equipped with appropriate pedagogical, communicational and technological competencies.

After the e-tutor has been appointed, he or she goes through *myUnisa* training. The e-tutor is trained on the *myUnisa* platform on how to use the tools available. The e-tutor also receives subject-specific training, where the module teacher familiarises the e-tutor with the content of the study material.

Unisa e-tutors are appointed to work 75 hours per semester based on a 15-week semester plan. This means an e-tutor needs to be active on an e-tutor site for five hours per week. The e-tutor needs to communicate and inform students of his or her availability, for example, the days and times when the e-tutor will be online. The e-tutors' days and times vary, depending on their availability. Even though the e-tutor is only available at a certain time or on a specific day, students are able to communicate and interact on the e-tutor site synchronously or asynchronously.

A student is linked to both a module site (teacher interaction) and an e-tutor site (e-tutor interaction). The module site is primarily for discussions between the teacher and students. The e-tutor site looks similar to the module site and has all of the *myUnisa* tools. It is crucial for a module teacher and an e-tutor to work together to determine which activities each site is conducting to eliminate repetition and confusion.

A good relationship between the module teacher and e-tutor is essential for the whole tutoring process to be successful. A module teacher supports e-tutors by providing them with subject-specific training and tutorial guidelines, and by monitoring their online activities. An e-tutor needs to understand what the module teacher is expecting from him or her with regard to the teaching approach of the module; therefore, communication between teachers and e-tutors is essential. An e-tutor project site is a closed online support forum where the module teacher and e-tutors can communicate and interact with each other or support each other. The e-tutors can also assist with the development of certain sections of the syllabus or additional exercises required.

Students are able to interact with their peers on both sites. The only difference is that the student can interact with all the students on the module site, whereas on the e-tutor site, the student can only interact with the 200 grouped students. The e-tutors have access to the module teacher site, but they are only allowed to interact with students on their e-tutor site.

Each e-tutor is responsible for the development and improvement of the e-tutor site. The module teacher is there to give guidance and advice on how the e-tutor might improve his or her site as the module teacher continuously monitors the site. The e-tutors improve their e-tutor sites every semester based on lessons learned from previous semesters. An e-tutor site needs to be of a high standard and should provide quality content that will benefit the student in completing the module successfully. A student can monitor and view the site at his or her own pace and practise the exercise questions throughout the semester. Each student is different. There are students who want to interact with an e-tutor, and then there are students who only want to monitor the site in the background.

Based on the discussion above, it is evident that e-tutoring includes all the activities of a teacher who supports a student to handle the online learning environment constructively and actively (Kopp et al., 2012). The e-tutor is the person who supports and enables students to learn effectively online, acquire new skills, and apply new knowledge. This is an initiative that recognises that distance and online students also want to be able to engage and interact with their peers and teaching staff just like their full-time face-to-face counterparts. According to Bear and Jones (2017), e-tutors also assist students in forming the attitudes, critical competencies, knowledge and skills needed to be effective in a profession. Fox (2003 as cited in Segoe, 2014) states that an e-tutor should be able to assist students to:

- solve real-life problems;
- activate students' prior knowledge to undertake new learning;
- take on broad new knowledge through discussions, demonstrations and examples;
- try out new learning approaches by applying such approaches in new situations; and
- integrate learning into the students' own world or real-life experiences.

The main activities performed by the e-tutors in the Department of Finance, Risk Management and Banking include providing academic and technical support; facilitating online delivery of tutorial material; managing students' online learning experiences and facilitating online students' interactions (peer interactions) (Unisa, 2018). In the next section of the paper, the methodology followed to conduct the study is described.

Research methodology

A cross-sectional, quantitative survey design approach was used to achieve the objectives of the study. The secondary objectives of the study were to determine:

- The level of participation on e-tutor sites by students.
- The student average number of hits for each module in a semester.
- The number of interactions (hits) a student has to make on an e-tutor site for there to be a positive student outcome.
- The relationship between student participation and exam results.

The above-mentioned objectives will be discussed in the following sections.

Participants

In this study, 19 842 registered students were purposively selected from five undergraduate modules, which are offered in the Department of Finance, Risk Management and Banking at Unisa. Those who participated on e-tutor sites were 5 173 students (26%) and the non-participants were 14 669 (74%). The student profile consisted of 62% female and 38% male students. The majority of the students were in the age category between 25–39 years. The sample was drawn from those who participated on the e-tutor sites who had three and above average number of hits. The procedure for determining the number of hits is discussed in the research procedure section.

Research procedure

Ethical clearance was granted by the Institutional Research Ethics Committee to use the secondary data available for the modules, subject to analysis. Currently, the department has ten modules that have been allocated e-tutors at various periods since 2014. Five modules, which were pioneers in implementing the e-tutor system, namely FIN2601 (Financial Management), FIN2602 (Personal Financial Management), FIN2603 (Finance for Non-Financial Managers), INV2601 (Investment Management: an introduction) and RSK2601 (Enterprise Risk Management) were selected for evaluation. These five modules had students subjected to e-tutoring for the longest period so that a trend of the performance of students over four semesters (from 2014 [semester 2] to 2016 [semester 1]) could be established and evaluated for impact. Table 1 below shows the number of registered students and e-tutors appointed in respect of each module over the period 2014–2016. Each e-tutor site was allocated, 200 students. This number of students is consistent with the observation of Fleckhammer and Wise (2011) who found through trial and error that the optimal size for effective participation in discussion boards is between 150 and 250 assuming 100% participation.

The data for analysis comprised of examination summaries and ICT records of student hits on e-tutor sites for each module in every semester. In this study, 'student hit on an e-tutor site' was defined as an action when a student is either viewing activities on the site, or downloading from the site, or actively participating in a discussion on the site. Thus, the number of hits the student made in each semester determined the participation of that

Table 1. Student allocation to e-tutors.

| | 2014 | | 2015 | | | | 2016 | |
| | Semester 2 | | Semester 1 | | Semester 2 | | Semester 1 | |
Module	Registered students	Number of e-tutors appointed	Registered students	Number of e-tutors appointed	Registered students	Number of e-tutors appointed	Registered students	Number of e-tutors appointed
FIN2601	1711	5	1698	9	1414	7	1477	7
FIN2602	883	4	752	3	668	3	562	2
FIN2603	816	3	861	4	777	3	862	4
INV2601	900	3	838	2	638	2	659	3
RSK2601	1427	6	1202	5	867	4	830	4
Total	5 737	18	5 351	23	4 364	19	4 390	20

Table 2. Minimum number of student hits on e-tutor site that produces impact.

Module	Minimum number of hits a student has to make to have impact
FIN2601	4
FIN2602	4
FIN2603	3
INV2601	4
RSK2601	4

student on an e-tutor site. The study could not determine whether the average hits are too low or not because the total time spent on a site by a student could not be provided by ICT to ascertain this. Being mindful that there had to be a minimum number of hits a student should make on an e-tutor site for there to be an influence on performance, the study sought to determine an effective number of hits through iterative statistical tests for each module. The study sought to determine the number of interactions (hits) a student had to make on an e-tutor site for there to be a positive student outcome (i.e. an improvement in performance as measured by a higher examination result). This involved successive divisions of students into participating and non-participating groups at each level of hits starting with one up to the nth level of impact and performing iterative t-tests. The computed effective number of hits was used as the basis for dividing the students into two groups: participating students and non-participating students. The participating students were those students whose hits were equal to or above the computed effective minimum number of hits as indicated in Table 2.

The process produced for each module the minimum number of student interactions (hits) on an e-tutor site illustrated in Table 2. For four modules, the minimum number of hits was four, and for one module it was three. The non-participating students comprised of students having fewer hits than the effective number; students allocated to an e-tutor site but not participating; and students not allocated to an e-tutor site and who were entirely restricted to engaging with the module teacher's site.

The performance of the two groups of students was compared using their examination marks in each of the semesters starting from semester 2 in 2014 and ending with semester 1 in 2016. The two groups were considered independent and were subjected to t-tests to determine the significance of the mean examination mark differences.

The validity of the t-test demands that the samples be drawn from normally distributed populations. However, the central limit theorem (Salkind, 2012) guarantees the validity of the test even if the populations are non-normal. The current study samples were fairly large ranging from 500 to 1600 students per module. The study did not find it necessary to perform preliminary tests for normality and equality of variances because the practice has shown such tests often detect differences too small to affect the t-test. In any case, the t-test is robust in moderate departures from normality and the p-value obtained can still be interpreted validly (Salkind, 2012).

Data analysis

Data were analysed using the Statistical Package for Social Sciences (SPSS) version 22 for Windows software and MS Excel. Descriptive statistics in the form of means and standard

deviations and inferential statistics in the form of the t-test were computed. For statistical significance, it was decided to set a cut-off alpha value at the 95% confidence interval level ($p \leq 0.05$) (Tabachnick & Fidell, 2010). To test whether the results of the study were robust to non-normal samples, the results were cross-checked using a non-parametric test, the Wilcoxon-Mann-Whitney test (Salkind, 2012). In the next section, we present a synthesis of the results.

Results

The study first determined the level of participation on e-tutor sites by students. The study defined the participation rate on e-tutor sites as the number of identified students who participated on the e-tutor sites divided by the total number of registered students per module. The study observed that although the participation rate is rising, it is still low (see Table 3 below). Considering that one registered student may engage as many times as he or she wishes, the ideal participating rate should be near 100%. Table 3 indicates that FIN2602 with 48.20% for semester 2 of 2015 had the highest participation rate followed by FIN2601 with 45.05% for semester 2 of 2015 and 41.46% for semester 1 of 2015. FIN2603 had the lowest participation rates for all semesters ranging from 10.78% in semester 2 of 2014 to 13.19% in semester 1 of 2016.

In the second stage, the study determined the average number of student hits for each module in a semester. A student hit on an e-tutor site does not necessarily mean an interaction with the e-tutor. The e-tutor site is still beneficial to such a student because, even if the student is not interacting with the e-tutor on the site, he or she is able to view and read all the discussions and interactions between the e-tutor and other students. The study found that the average hits first went up and stabilised in some modules namely FIN2602, INV2601 and RSK2601 while in FIN2602 the average remained in an upward trend as illustrated in Figure 2. FIN2601 had the highest average number of student hits 28, 18 and 16 for semester 1 and 2 of 2015 and semester 1 for 2016 followed by FIN2603 with 19 hits for semester 1 of 2015. Overall, RSK2601 had the lowest average number of student hits for all semesters covered by the study.

In the last stage of the investigation, t-tests were performed on the examination marks of participating and non-participating students using the minimum number of hits required for impact (see Table 2) as the dividing line. The results of the t-tests and the effect size determined through Cohen's d are shown in Table 4 below.

According to Table 4, the mean examination marks of participants are higher than those of non-participants for all modules and all the semesters as expected. The results

Table 3. Student participation rate on e-tutor sites.

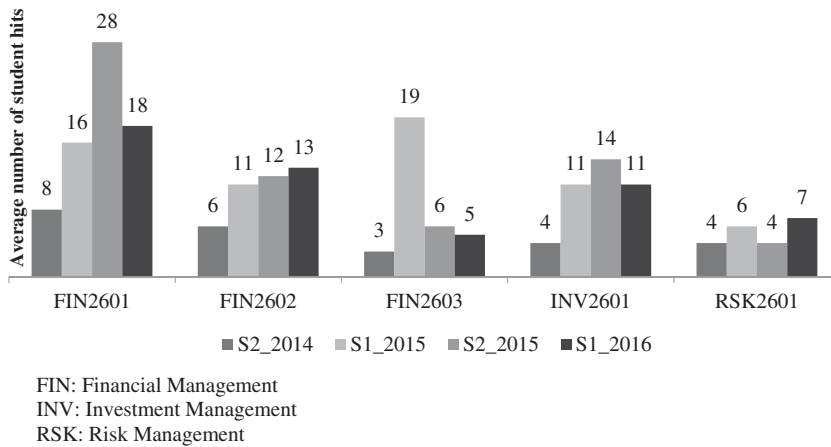| Module | 2014 | 2015 | | 2016 | |
	Semester 2 Participation rate (%)	Semester 1 Participation rate (%)	Semester 2 Participation rate (%)	Semester 1 Participation rate (%)	Average over 4 semesters
FIN2601	19.46	41.46	45.05	33.11	34.77
FIN2602	18.80	34.84	48.20	22.06	30.98
FIN2603	10.78	11.27	19.56	11.14	13.19
INV2601	16.89	16.95	20.22	37.48	22.89
RSK2601	15.21	26.54	28.26	30.36	25.09

Figure 2. Average number of student hits on an e-tutor site per semester.

show that FIN2601 and RSK2601 for semester 2 of 2014 are statistically significant at the 95% confidence level. For semesters 1 and 2 of 2015 and semester 1 of 2016, there is a significant difference between the mean examination marks of participants and non-participants except FIN2602 for semester 2 of 2015.

Discussion

The results show a positive impact of e-tutoring on student performance (the level of significance is 5%). At the 0.05 level of significance, there is a 95% chance respectively that the results are due to the influence of the student participation on the e-tutor site.

The results confirm that over the time period from the inception of e-tutoring in 2014 till 2016 there was a significant difference on the performance of the students who participated on the e-tutor site compared to those who did not. On inception in 2014, performance outcomes of participating students increased in all modules and significantly in three modules when compared with non-participating students. In subsequent semesters in 2015 and 2016, the performance of participating students was significantly better than that of non-participating students.

Notwithstanding the positive impact on student performance, it was observed that not all students participate on the e-tutor sites as shown in Table 3. Student participation, especially on modules with an already high pass rate, remains very low (De Metz & Bezuidenhout, 2018). Based on the low participation rates, it can be concluded that there was limited interaction between the students and the e-tutors during the period of the study. Hence, there is no collaborative learning or participation in a community of practice for students to connect and share knowledge. From the results of the study, it can be inferred that more support is needed in preparing the students to engage on the e-tutor site and enhance the social presence to create an online learning community (De Metz & Bezuidenhout, 2018). The results also corroborate with literature which states that students mostly read what is beneficial for them online without engaging in meaningful, deep learning (Pitsoane, Mahlo, & Lethole, 2017).

Table 4. T-tests results of examination marks.

Semester	Module	Mean examination marks of participants	Standard deviation for participants	Mean examination marks of non-participants	Standard deviation for non-participants	t-statistic	p-value	Level of significance	COHEN d	Effect
S2_2014	FIN2601	55.4	14.67	48.5	16.26	5.29	0.0000	5%	0.43	Moderate
	FIN2602	70.0	13.31	64.4	13.77	1.55	0.0629	10% Not significant	0.19	Small
	FIN2603	58.6	18.19	54.6	17.77	1.03	0.1567	>10% Not significant	0.22	Small
	INV2601	53.6	12.59	53	11.68	0.39	0.3482	>10% Not significant	0.05	Very small
	RSK2601	58.5	13.86	52.8	13.57	3.47	0.0004	5%	0.42	Moderate
S1_2015	FIN2601	49.9	17.22	45.4	16.63	4.59	0.0000	5%	0.27	Small
	FIN2602	55.0	10.79	49.5	12.00	5.27	0.0000	5%	0.47	Moderate
	FIN2603	54.4	17.90	47.2	15.89	3.13	0.0012	5%	0.45	Moderate
	INV2601	55.3	15.37	47.8	14.22	5.02	0.0000	5%	0.43	Moderate
	RSK2601	55.4	14.56	52.2	13.94	2.75	0.0032	5%	0.23	Small
S2_2015	FIN2601	54.6	19.04	47.3	17.97	6.51	0.0000	5%	0.40	Moderate
	FIN2602	65.0	19.27	62.8	15.51	1.5	0.0668	10% Not significant	0.13	Small
	FIN2603	56.2	18.80	49.2	16.78	3.37	0.0005	5%	0.41	Moderate
	INV2601	56.9	14.85	50	13.52	4.14	0.0000	5%	0.51	Moderate
	RSK2601	59.6	13.54	56.8	13.59	2.27	0.0121	5%	0.21	Small
S1_2016	FIN2601	49.9	17.82	46.1	17.49	3.58	0.0002	5%	0.22	Small
	FIN2602	70.4	12.78	61.8	15.08	5.42	0.0000	5%	0.59	Moderate
	FIN2603	62.7	18.73	55.1	17.09	2.96	0.0021	5%	0.44	Moderate
	INV2601	55.9	14.37	51.9	13.40	2.89	0.0021	5%	0.30	Small
	RSK2601	60	12.78	57.8	13.80	1.66	0.0495	5%	0.16	Small

The low participation rate implies much idle time for e-tutors, for example, an average participation rate of 25% for an e-tutor who has been allocated, 200 students. This would imply that the e-tutor is interacting with either 50 students at most if each student is having one hit on the site or fewer than 50 students if only a few are having several hits. These findings support Ntuli (2016, p.71–74) and De Metz and Bezuidenhout (2018) who interviewed e-tutors at Unisa and established that the student participation rate was low (below 10% participation out of 200 students allocated to each tutor).

It can be concluded that students are still far from perceiving online learning within a social constructivism framework in which a student is an active participant and where the emphasis is placed on social participation and independent studying (Kyriaki, 2009). However, the low participation rate of students on e-tutor sites could also be due to their lack of sufficient access to technology, and suggests they are still naïve when it comes to using online learning to their advantage (Pitsoane et al., 2017). The results of the study, on the other hand, may also indicate that cognitive and teaching presence (in this case through e-tutoring) plays a significant role in enhanced exam performance.

Implications and recommendations for the study

For this study, the results should have interesting implications for ODeL institutions. E-tutoring may well be used to create an active, positive online learning environment with the view of reinforcing student support. It could be inferred that the pass rates of students who participated on the e-tutor sites were significantly higher than those who did not participate. Academics should encourage students to participate and interact on the online platform to enhance their learning experience. The advantage of an online platform like *myUnisa* increases the level of interaction between students and teachers, and students amongst themselves. Teachers and e-tutors should incorporate all three presences on whatever online platforms they use. It is essential that students in ODeL institutions interact with their teachers/e-tutors and with one another to enhance their learning experience. This will lead to higher qualification completion rates. This is something that we do not experience when students do not fully interact. To this end, building on our research and our experience with e-tutoring, the study recommends that ODeL institutions implement e-tutoring as part of their student support programme.

Recommendations for future research

This research focused on a small number of modules specific to one department within a specific university. To our knowledge, being the first quantitative study on the relationship between student and e-tutor interaction and student success, it cannot be assumed that these findings would be replicated if the study were to be repeated in another department or other subject discipline at the same university or at another university, which uses the same e-tutor model. It is recommended that a similar study be conducted within other departments within the university to understand the levels of student and e-tutor interactions in those departments. Another study that could be done would be to test whether the feeling of isolation of students changed due to e-tutoring. This is a quantitative study; therefore, our recommendation is that a qualitative study be conducted to understand students' perceptions of online learning and teaching. Another

future study could also investigate if there are statistically significant differences between age, gender and student performance. The authors tend to believe that the insights derived from this study have deepened the understanding of the importance and influence of e-tutoring in an ODeL environment.

Conclusion

To conclude, the increasing need for students who study in an ODeL environment to interact with teaching staff, e-tutors and peer students has become evident in the current study. The importance of well-trained e-tutors was highlighted by the different roles an e-tutor needs to fulfil, namely a pedagogical, social, managerial and technical role. Even though the participation rate of students on the e-tutor sites was low, the findings of the study to some extent, indicate that if a student actively participates and engages with his or her e-tutor, such a student's performance would improve. Those students who participate on e-tutor sites can benefit from an online community of practice and collaborative learning. It is important for e-tutors in conjunction with the teacher to develop innovative ways of encouraging students to participate on e-tutor sites continuously through enhancing the e-tutor's cognitive, teaching and social presence online. In an attempt to reduce the isolation and distance between the student and the university, ODeL institutions can use the results from this study to motivate students to actively participate on the e-tutor site, as this will help them succeed.

Disclosure statement

No potential conflict of interest was reported by the authors.

Notes on contributors

Suné Maré is a Lecturer in the Department of Finance, Risk Management and Banking at the University of South Africa (Unisa) where she has been working since 2010. She obtained her Master's degree with distinction at Unisa. Her interests lie in the area of teaching and learning, risk management and insurance. She is a member of the learner support committee within the department and has been actively involved in the training of e-tutors and face-to-face tutors. She is also involved in the development of modules for online teaching. In 2016, she received Unisa's Excellence in Teaching and Learning Award for student support.

Ashley Teedzwi Mutezo is an Associate Professor in the Department of Finance, Risk Management and Banking at the University of South Africa. She holds a Doctor of Commerce Degree in Finance and Investment and a Master's Degree in Business Management from Unisa. She is a member of the Risk and Insurance Management Society (RIMS) and the Institute of Risk Management in South Africa (IRMSA). Her research interests are in Risk Management, Banking and SME Financing. Ashley has published in accredited journals and presented several papers at international and domestic conferences.

ORCID

Suné Maré ⓘD http://orcid.org/0000-0003-0892-8762
Ashley Teedzwi Mutezo ⓘD http://orcid.org/0000-0002-3002-0040

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