

e-Tutors' Perspectives on the Collaborative Learning Approach as a Means to Support Students of Computing Matters of Course!

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Abstract. Open Distance e-Learning (ODeL) institutions support e-tutors, providing them with digital tools, to select what they feel comfortable using to facilitate e-learning. Management systems further enable e-tutors to collaborate with students of Computing modules. This paper explores the collaborative learning approach employed in 'Computer Integration in the Classroom' offered at an ODeL institution. The Collaborative Learning Environment (CLE) was studied based on Vygotsky's social constructivist theory. The research approach was qualitative, with a case study design. The population was seven purposively sampled e-tutors. Data was gathered using unstructured interviews, non-participant observation and document analysis. Findings revealed limited interaction between e-tutors and students in the CLE. Participants indicated a need for training in how to motivate and engage students in a CLE. We recommended that e-tutors receive training, ensuring that they do not focus solely on how to interact with students using a particular platform, but also develop scholarly approaches towards involving students.

Keywords: e-Tutors, Collaborative Learning Environment, Students, Open and Distance e-Learning, Learning Management System.

1 Introduction

Teaching and learning in the 21st century is no longer confined to the four walls of the classroom [1], [2], [3]. Garrison [4] states that distance is no longer a barrier to learning, as the use of educational technologies makes it possible for all students to interact and learn remotely, and particularly those studying Computing modules. The use of educational technologies at Open and Distance e-Learning (ODeL) institutions has evolved significantly in recent years [5]. These technologies provide new opportunities for students to interact with their lecturers and peers in acquiring knowledge and skills related

to their studies [6]. Students engaged in ODeL need learning environments that will motivate them to focus on their learning, and they gain a great deal from interactions both with other students and with their lecturers [1]. These interactions encourage the important skill of collaboration, in order to share information, as more and more enterprises are digitizing, enabled through communication and collaboration [7].

Use of the internet makes it possible to apply various digital technologies and techniques that sustain ODeL practices and maximise independent learning [4]. As also pointed out by Goosen and Breedts [8], the changing environments of digital technologies and computer applications are key drivers in the presentation of collaborative learning experiences in this new transformed education system [6].

A collaborative learning approach encourages students to view the environment from a different perspective and provides them with an opportunity to practise social and leadership skills [6]. Students in a collaborative learning context assume a more active role than in a traditional instruction setting. Moreover, in the 21st century, students are better informed as a result of their learning experiences when education is supported by technology [5]. García-Valcárcel, Basilotta and López [6] attest that 21st century presentation of content offers students greater freedom to expand their thinking potentiality, and collaborative virtual learning contexts generate learning environments that meet this **objective**. The use of technological devices and the internet offers a considerable advantage for the presentation of a collaborative learning experience.

Collaborative learning environments are evolving, as ODeL institutions have begun to take advantage of unique features offered in virtual world spaces that make it possible to record and map the flow of ideas [9]. Groups of students will potentially benefit from collaborative thinking as they learn to mobilise energy and actions for the achievement of common goals [10]. Specifically, they will rely on an accumulative intelligence that is greater than the sum of their individual talents [6].

The advancement of new digital technologies does not limit students and e-tutors to a particular platform for sharing information and skills. A variety of technological devices that offer a broad choice that could work well for both students and e-tutors is available on the internet. At the beginning of each semester, students interact by exchanging cell phone numbers in order to form WhatsApp groups. This behaviour prompted the study under discussion, to establish whether students benefit from interactions with one another and e-tutors. Limited research has been conducted into how e-tutors interact with students in a collaborative learning environment.

The University of South Africa (UNISA), as an ODeL institution, relies on the collaborative learning context, as students have the opportunity to further their studies in different places and at different times [11]. The institution is pursuing a shift from open distance learning to open distance e-learning and has extended student support through the appointment of e-tutors.

Since Johnson and Johnson [12] consider cooperative learning to be the foundation for active learning, and with similarities to the article by Pitsoane, Mahlo and Lethole [13], this paper will provide access to some of the UNISA e-tutors' perceptions, experiences and views of such active learning.

2 Background

Open and distance e-learning can be a lonely experience for students, who may feel isolated and unsupported. The use of technology has bridged this gap and made it possible to extend support to students in the form of collaborative learning environments.

In 2013, UNISA implemented an e-tutoring model for the provision of student support [14]. The institution uses the *myUNISA* learning management system as a platform for collaboration between lecturers, e-tutors and students by means of a range of digital technologies. The digital tools on this platform facilitate communication between students, e-tutors, lecturers and administrative staff. *myUNISA* can be accessed by students [15] from any remote location at any time when the need arises [14].

As of 2013, UNISA has appointed e-tutors to drive the e-learning process [14]. E-tutors are required to communicate with students via *myUNISA*, and they are expected to monitor students' self-paced learning [13]. They guide, advise, provide clarity regarding difficult concepts, and generally enrich students' UNISA experience [11].

The following digital tools that facilitate interaction between e-tutors and students are available on the *myUNISA* platform:

- **Announcements:** Lecturers and e-tutors use this tool to inform students about important matters related to modules
- **Discussion Forums:** This tool is used mainly for student–student and lecturer–student interactions
- **Additional Resources:** Lecturers and e-tutors can upload additional resources for students, and students can access these by means of this tool
- **Schedule:** The Schedule tool is used to make students aware of important dates such as examination dates and the due dates for assignments
- **Statistics:** This tool provides information about how many times users visit different tools and sites on *myUNISA*.

E-tutors are not restricted to these *myUNISA* tools; they are allowed to activate more, which are available by means of the Site Info facility.

At UNISA, two hundred students are assigned to one e-tutor [16]. All e-tutors are linked to their respective module sites, as are the students, who are provided with access to the sites that enable them to interact with lecturers, e-tutors and UNISA teaching and learning materials [17]. UNISA also employs Administrative Student Coordinators (ASCs), whose job it is to monitor e-tutors' group sites to ensure that e-tutors attend to students' questions timeously and that the responses are in line with UNISA's quality standards [13]. In addition, ASCs are responsible for tracking students' involvement in the collaborative learning environment.

2.1 The Role of e-Tutors

Morillas and Fandos [18] consider tutoring at higher education institutions to be part of the teaching and learning process, the basic purpose of which is to improve students' academic success and help them attain their professional goals. E-tutors contribute to students' academic success through their interaction with students in a collaborative learning setting in which they guide students and help them understand any parts of the

learning content with which they may have difficulties. The presence of an e-tutor encourages students to ask questions and reflect on their online learning [19].

The main e-tutor roles identified by Berge [20] were pedagogical, social, managerial and technical. These are discussed next.

The pedagogical role includes tasks such as guiding and maintaining students' involvement in online discussions. This role draws on the methods used to create a collaborative learning experience. An e-tutor is expected to respond promptly and to ensure that students participate actively in online discussions. The Educational Broadcasting Corporation [21] emphasises the following techniques as essential pedagogical practices for a collaborative learning environment:

- prompt students to formulate their own questions (inquiry)
- allow multiple interpretations and expressions of learning (multiple intelligences)
- encourage group work and the use of peers as resources (collaborative learning)

The social role involves the creation of friendly and attractive social environments for students. As also pointed out by Vorster and Goosen [22], in essence, it promotes the continued support of human relationships, maintaining a group as a unit and helping participants collaborate. Excellent communication skills on the part of e-tutors are of the utmost importance in this regard.

The managerial role involves organising learning activities and tasks, clarifying procedural rules and decision-making. An e-tutor needs to display strong leadership and direction in presenting content to students.

The technical role entails becoming conversant with the digital devices and software that is to be used in a collaborative learning environment. Students must receive technical support online. The technical role is the most important, because online technologies are used as platform for teaching, supporting, managing and assessing students.

The Educational Broadcasting Corporation [21] contends that as the collaborative learning process unfolds, an e-tutor is expected to coach and suggest, while at the same time leaving room for students to conduct their own hands-on experiments, ask questions, engage in trial and error and succeed on their own. Collaborative learning activities must be structured in such a way that students participate fully. Students should also be provided with the opportunity to reflect on what they have learnt.

The above-mentioned roles are promoted through e-mails and online tutoring. E-tutors need to exercise patience as they interact with students, and to accommodate diversity. For students, this new educational teaching and learning method promotes collaborative learning in groups, while at the same time allowing e-tutors to prompt students to answer or comment and monitor the pace at which students' progress, from an educational perspective [23]. Interaction in a collaborative learning experience is key to the success of an e-learning environment.

2.2 Collaborative Learning

Collaborative learning involves two or more people learning or attempting to learn something together. This could involve, for example, teachers' information communication technology competencies in classroom practices [24] related to knowledge, skills and competencies [9], [25]. Khalil and Ebner [26] and Westbrook [27] further define

collaborative learning as a set of processes, which help people to share knowledge or information in order to achieve a specific goal that is usually content specific. Sansivero [28] offers a slightly different perspective, defining collaborative learning as a methodology that transforms the traditional lecture or lecturer-centred approach into a student-centred one. Students work as a group to help one another understand content, solve problems or create projects, with the lecturer facilitating their virtual learning.

Interaction in a collaborative learning environment involves students working in pairs or in small groups, deliberating on learning activities or finding solutions to problems. Unlike in individual learning, collaborative learning participants rely on one another's resources and skills to achieve the end results. They shed light on the learning activities provided, asks questions for clarity, synthesise and share information to arrive at a desired goal [9].

During collaborative learning, it is expected that a particular form of interaction among the participants will take place that prompts a collective learning mechanism [25]. The sharing of knowledge and skills among two or more people is better than individual learning; many computer lecturers, like Goosen and Pieterse [29], believe that the lows related to misunderstandings and misconceptions can be turned into the highs of understanding through interaction between students [9].

Collaborative learning can take a variety of forms, such as quick online forums, chat rooms, collaborative writing, group projects, joint problem-solving, debates, study teams, and other activities [30]. All the participants are engaged in a common learning activity and are both dependent on, and responsible for, the outcomes [9].

Educational experiences of collaborative learning are designed based on the premise that interactivity and sharing of information in small groups produces stronger solutions than would have been arrived at individually [28]. In addition, García-Valcárcel et al. [6] attest that collaborative learning encourages students to understand learning from a different perspective: the environment creates a learning experience that allows students to practise social and leadership skills and provides a satisfactory learning experience that significantly reduces anxiety.

In the 21st century, collaborative learning is increasingly finding its way into the virtual world and has given rise to a new educational scenario that merges the notion of group-based learning and the potential offered by new digital technologies [26].

2.3 How Collaborative Learning is Implemented

Key to a successful collaborative learning experience is the evaluation and selection of the appropriate digital technology suited to the lecturer's pedagogy, students' needs and the specific outcomes of a course [26]. Thomson [1] emphasises that for collaborative learning to be a success, the appropriate strategies for learning activities need to be put in place, otherwise it is possible that students studying at a distance may experience a sense of isolation and feel neglected or even disengaged. The proper strategies would give rise to easy collaboration, and students would quickly become acclimatised within a new learning environment. This would sustain their interest and improve focus, and they would be able to contribute in the best possible way and achieve quality results.

A well-planned collaborative learning experience with broadening technological tools will enable students to learn how to learn, giving them the opportunity to learn not only individually, but also from their peers, as they are able to pick up learning strategies and methods from one another [21].

The e-tutor or lecturer should constantly think of ways to introduce a collaborative learning experience to the students. Time should be allocated for interaction and navigating digital technologies, and the e-tutor needs to think about how to support students and probe as the collaborative learning experience unfolds [31]. An e-tutor should demonstrate empathy, putting herself or himself in the students' shoes, as a large number of learning activities are undertaken collaboratively online.

The lecturer should consider students' prior knowledge as a connection to new content knowledge [21]. Familiarity with the selected technology is paramount, and so students need to be provided with the opportunity to navigate or familiarise themselves with the selected digital technology [31]. When students are comfortable with the selected technology, the lecturer can proceed to more challenging activities, prompting students as learning flows and asking them to reflect on what they have learnt. The role of an e-tutor during this process would entail offering guidance and ensuring that students are on the correct path.

According to McWhaw, Schnackenberg, Sclater and Abrami [32], in order to help students to become collaborative learners, and move from co-operation towards collaboration, the social and intellectual outcomes of learning in groups need to be considered. For a collaborative learning experience to be a success, the following five basic elements identified by Johnson and Johnson [33] should be borne in mind:

1. positive interdependence to ensure that individual students believe that they 'sink or swim together'
2. promotive interaction to ensure that group members assist, encourage, help, praise and support each other's efforts
3. individual accountability to ensure that, as emphasized by Goosen and Mentz [34, p. 55], "each collaborator must be individually accountable" to do their reasonable share of the work
4. interpersonal and social skills to work effectively with others
5. group members process how well they achieve their goals and maintain effective working relationships.

Thomson [1] suggests six online collaboration strategies, which are discussed below:

1. Provide a clear definition of expectations and purpose: Students should be made to understand what is expected of them, for example, why they have to work together as a group, clarification of their syllabus, how interaction should take place, and the specific platform for collaboration.
2. Provide clear instructions to students in a group: Clear and proper instructions need to be formulated, and every activity should have a purpose so that students understand the route to take. Due dates should also be provided.
3. Keep groups small: Small groups enable the lecturer to provide all students with enough attention, and all students have the opportunity to respond and contribute actively to the activity.
4. Provide close monitoring and support: The lecturer is expected to be readily available when the need arises.

5. Set etiquette guidelines for proper participation: Guidelines are essential to familiarise students with navigation rules; this will enable them to work towards the achievement of a common specific outcome.
6. Devise activities relevant to the topic: As pointed out by Goosen and Van der Merwe [35], the e-tutor needs to be knowledgeable about content, and be able to select from various possibilities those activities that will keep the Information and Communication Technology (ICT) in education content relevant to the theme. Exploration activities encourage greater interaction, especially when they are linked to a real-life situation.

As collaborative learning experiences unfold, students will ask questions, obtain clarity, respond to questions, navigate, and help each other to reach the desired goal [26].

The advancement of new digital technologies supports collaborative learning experiences in higher education. These tools need to have the appropriate functionality and be user-friendly [1]. They should also allow for stronger and more powerful engagement with collaborative learning environments [9]. Only then can students feel confident and interact to complete their tasks.

Thomson [1] emphasises the importance of choosing the ‘best’ digital technology [36], as this will contribute to the collaborative learning environment. The activities could be carried out quickly.

Table 1 sets out examples of collaborative tools and how they are being integrated in teaching and learning [1]. The online collaboration digital tools mentioned in Table 1 highlight how collaborative learning experiences could bridge the gap between distantly located students and lecturers, and how students in the 21st century is able to learn and gain more from one another. The various digital platforms, along with the proper implementation of online strategies by lecturers, could lead to the enhancement of students’ content knowledge and the honing of their skills.

3 Social Constructivist Theory

The social constructivist theory of Vygotsky [37] was the lens through which the collaborative learning experiences of students enrolled for the module ‘Computer Integration in the Classroom’ (FDEME3L) at UNISA was viewed – this module obviously focuses on computer integration into teaching and learning, which happens in a classroom [38]. Social constructivist theory was considered suitable for the study, because it emphasises the sharing of knowledge and the assistance rendered by knowledge experts. Social constructivism considers the construction of knowledge through learning as a group and being provided with the chance to reflect on what has been learnt [21].

Vygotsky [37] favoured having students work as a group to share different ideas, after which they can concur and arrive at a deeper understanding of an activity [39]. Wikipedia [9] states that collaborative learning is rooted in notion of the zone of proximal development, from Vygotsky [37], which emphasises that knowledge is developed through interaction with other people. The idea of the zone of proximal development emphasises learning through interaction with other students, rather than as an individual [39]. As students interact, they construct knowledge for themselves as learning unfolds. In addition, since students cannot be expected to master activities on their own, mastery

Table 1. Examples of collaborative tools and how they are integrated in teaching and learning.

Collaborative learning digital resources	Operation
ProofHub	This software not only enhances collaborative learning experiences, but also significantly improves communication among distantly located participants. A group interacts through a chat room; questions that are asked are answered quite quickly.
MindMeister	This collaborative platform enables participants to plan or brainstorm on a single mind map document in preparation for group work. Besides mind maps, this software features direct live chat and fast communication.
Google Docs	This online collaborative device facilitates the creation and sharing of documents. Documents can be edited and accessed from any remote location at any time and from any digital device. Formatting can be done by users and changes to a document are saved automatically as typing is done.
BigMarker	Participants communicate through webinars so as to share information from different locations in real time. The slide presentations, videos, chats and webcams can be recorded and stored for later viewing and sharing. Participants who miss live events are provided with the opportunity to view the recorded version at a later stage.
Skype	The lecturer video conferences with a group of students. This platform enables members of the group to interact conveniently and support one another. Skype also offers a video chat facility that boosts online group learning.
Collaborative learning using Wikipedia	Wikipedia as a collaborative learning experience platform is extremely beneficial for students engaging in online discussion, as it enables a group of students to share information and exchange ideas.
Blog	The lecturers can use this platform as a collaborative learning log to support students. The students are allowed to reflect and share their collaborative learning experiences. They can also post queries pertaining to assessment and receive prompt feedback [40], [41].

can be realised only with the assistance of a person who is more knowledgeable. This person can be, for example, a lecturer or an e-tutor.

For the Educational Broadcasting Corporation [21], constructivism does not dismiss the responsibility of lecturers to assist students by imparting expert knowledge. A lecturer is expected to constantly help students to construct knowledge, rather than simply to reproduce information. Construction of knowledge assists in transforming students from passive recipients of information to active participants in the learning process. In the context of the study under discussion, the expertise of e-tutors and how they probe interaction was taken into consideration.

4 Methodology

FDME3L is a module for which roughly 3300 students register per semester. The study involved seven e-tutors who tutored FDME3L students in the 2017 academic year. As also described by Goosen and Naidoo [42], these e-tutors as ‘computer lecturers’ used the ICTs on the institutional *myUNISA* Learning Management System (LMS)

to facilitate teaching and learning [43] in the cyber world, as well as e-mails, to collaborate or interact with students.

The study sought to explore how e-tutors supported FDEME3L students by means of the collaborative approach towards facilitating the module. The qualitative research approach was considered appropriate for the study, because it was possible to directly explore the perceptions of e-tutors in a natural setting; in this instance, the *myUNISA* learning management system. The foci were the experiences of the e-tutors in terms of collaborative module activities, their roles as e-tutors and how they used different digital technologies to interact with students. A case study research design was used, and data collection strategies included unstructured interviews, non-participant observation and document analysis. The targeted sample comprised the seven e-tutors for the module FDEME3L, who shared their lived experiences of collaborating with students from the beginning of a semester until students sat for their final examination for the 2017 academic year. The intention was to observe various digital technologies available on the *myUNISA* learning management system being used as a means to support students. Digital tools such as Announcements, Schedule, Additional Resources, Discussion Forums and e-mail were investigated.

The data used were collected over both semesters in the 2017 academic year. Seven e-tutors for the module FDEME3L shed light on their e-tutoring experiences during unstructured interviews, which used a set of open-ended questions to gather data.

The primary computer lecturer for the module was able to observe the e-tutors' interaction with students by means of group sites on *myUNISA*. The participants' experience in supporting students by means of a collaborative learning environment was also observed. The *myUNISA* learning management system was used to access e-tutors' group sites for the purposes of non-participant observation in terms of data collected. All e-tutors were linked to *myUNISA*, and each had her or his own site to use as a collaborative learning environment.

In all data gathering, ethics protocol was observed through informed consent, voluntary participation, anonymity and confidentiality. The participants were informed about their role in the study, that their participation was voluntarily, and that they could withdraw at any time if they so wished. The participants were reassured that their contributions would be treated confidentially and that letters of the alphabet would be used, instead of their real names, when reporting was done: to maintain anonymity, the participants were referred to as participants A to G. Assurance was also provided that their shared collaborative experiences would not be linked to their names. Approval for the study was sought and obtained from the UNISA College of Education ethics committee.

The data were analysed using the data analysis procedure suggested by Creswell [44], including observation data analysis conducted on each e-tutor's group site.

The data gathered by means of the three data collection strategies were reduced to manageable and understandable information. Similar patterns were put together and coded, and this resulted in the establishment of themes.

5 Discussion of Findings

The findings are based on content analysis of the unstructured interviews, non-participant observation and document analysis. A representative sample of the lived e-tutoring experiences of e-tutors for the module FDEME3L was highlighted.

All seven the participants were teachers.

According to the findings, the female participants seemed more prepared to face technological challenges than their male counterparts.

With regard to the participants' age, four were below the age of 50, suggesting that the majority were digital natives.

Of the seven participants, five had sound experience and the potential to work as e-tutors, as compared to the other two.

The results revealed that most of the participants were technologically capable and had the necessary skills to facilitate a collaborative learning experience.

UNISA provided all the participants with training in e-tutoring before they were allocated students. In addition to receiving training, all had good qualifications in educational technology, the minimum qualification being a BEd honours in computer-integrated education or computer-based education. Four e-tutors had a BEd honours in computer-integrated education, two had master's degrees in computer-based education and one had a doctoral degree in the field of educational technology. The technology content knowledge and skills they had acquired enhanced their ability to overcome difficulties associated with the collaborative learning environment.

Of all the available digital tools on the *myUNISA* platform, the participants indicated a preference for **Discussion Forums**, because this tool enabled them to motivate, guide and actively engage students. In terms of interacting with students, all the participants used the Discussion Forums tool as a means of student support. The Discussion Forums site was used mainly for discussions of the learning material and responding to students' questions. Evidence of the support provided to students is revealed in the following excerpt:

Participant F: "In the discussion forum, generally I used (the) Gilly Salmons 5 stage model on online learning. I began by setting the scene. The first discussion was to welcome them and have the members introduce themselves. Thereafter, we discussed the learning material that they have to use."

Another tool used by all the participants was the **Announcements**. The participants indicated that they used this tool to notify students about the learning activities. The participants were highly skilled in the use of this technology.

Limited use was made of **e-mail**, with only two participants using it to interact with their students.

The **Site Info** tool on the *myUNISA* platform provides access to other digital tools that *myUNISA* users can activate and use. Users are therefore not confined to the readily activated tools on *myUNISA*, but are afforded the opportunity to try other tools, such as blogs, podcasts and wikis. Participants required support in the form of readily available information and a broad choice of user-friendly digital tools. One of the participants indicated a need for training on motivating students to participate actively and use the Site Info tool:

Participant E: "I need support on how to encourage students to actively participate in discussions about the subject content and how to use the Site Info Tool."

The participants were unanimous that collaboration as an e-learning method enables students to help one another by sharing information. Students gain knowledge by interacting with other students, lecturers and e-tutors, and are able to achieve goals that they were unable to attain while learning as individuals.

The participants also indicated that most students do not participate actively in collaborative learning experiences and seemed not to favour working in groups. The participants found the poor engagement of students in the collaborative learning experience and how to motivate them to participate actively, to be challenging.

The tutorial letters sent to e-tutors were also taken into account as a means to further collect data. The tutorial letter stated that e-tutors were expected to:

- familiarise themselves with the prescribed book, study guide and tutorial letters for the module
- access the *myUNISA* learning management system and become acquainted with their group site
- cover all the study material within a stipulated time frame
- go through materials and prepare for tutor sessions
- motivate students to participate actively in collaborative learning platforms
- help students understand materials and assignment questions without giving them the answers
- liaise between the lecturer and students.

The e-tutors were also reminded to work closely with ASCs and the module lecturers, so as to ensure that they all had the same point of departure.

In addition to tutoring training, e-tutors also received such tutorial letters, which included the timetable, clearly setting out how to tutor students and all the activities that e-tutors are required to carry out. This timetable was a suggestion from lectures as to what to do; as technology experts, the e-tutors were expected to be innovative and use their technological expertise to make a collaborative learning experience interesting and beneficial to students. This became evident during the interview sessions, when it was revealed that one of the participants elected to choose a platform that was not included on *myUNISA*. As revealed in the excerpt below, one of the e-tutors created other platform accounts and used these to interact with students:

Participant A: "As an e-tutor, I also have an account on quizlet. I created multimedia interactive tutorials and linked them with my students through myUNISA."

Each e-tutor's group site includes a Report Activity on *myUNISA*, and this was used to establish how e-tutors collaborated with students. As a non-participant observer, the researchers chose to present the analysed information graphically. Fig. 1 presents information illustrating e-tutors' interactions with students using the four digital tools.

The results in Fig. 1 reveal that the Discussion Forums tool was used by all e-tutors to interact with students. This tallies with information provided by participants as they shared their lived collaboration experiences in interviews sessions. They indicated that they used this tool to engage students in discussions about the module.

The second most preferred tool used by e-tutors on their group sites was Additional Resources. Most of the participants uploaded more resources for students, for further

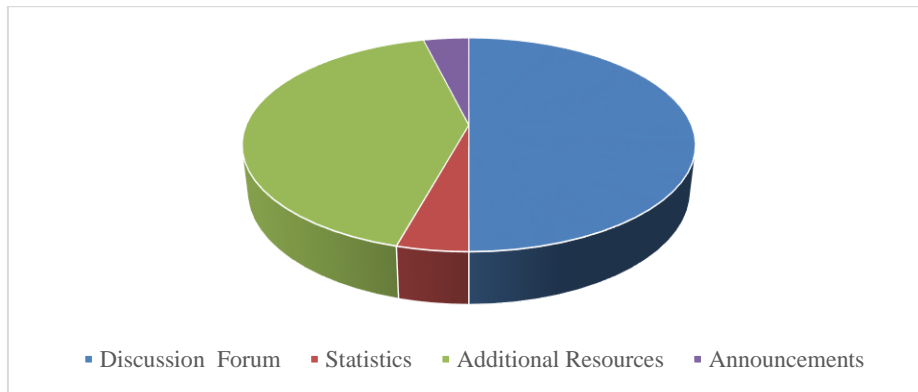


Fig. 1. Information relating to the use of four digital tools, illustrating e-tutors' interactions with students.

reference in their interactions. The uploaded materials provided students with more opportunities for discussion, and to overcome problems.

The Statistics tool provides information about how often other tools within a group site are visited and allows an e-tutor to view the most active tool and most active user. All e-tutors were identified as the most active users, and the Discussion Forums tool was identified as the tool that they used most frequently.

Use of the Announcements tool was shown to be limited, with only three e-tutors using it to any significant degree. This implies a lack of knowledge on the part of e-tutors regarding how to use this tool.

All in all, the results show less commitment to interaction on the part of students, while the equipment of e-tutors with the skills required to present a collaborative learning experience using appropriate digital tools needs more attention.

6 Recommendations

So as to ensure that e-tutors do not focus on how to interact using one particular platform only, but instead develop a scholarly approach with regard to involving students, they should be trained in how to support students in terms of the following:

- knowledge of various platforms that can be used in a collaborative learning experience
- ability to select the appropriate digital tool to ensure the achievement of module-specific outcomes
- how to motivate and engage students in a collaborative learning environment
- how to make appropriate use of the *myUNISA* learning management system.

7 Conclusion

Especially for students of Computing modules, which are often described as “frustrating” and “difficult” to learn [45, p. 169], the use of technology in teaching and learning has a significant impact on the presentation of modules by higher education institutions. Although this paper highlighted the fact that e-tutors still have more to learn about collaborative learning environments, Goosen and Gouws [46, p. 99], referring to Goosen [47], also pointed out that the collaborative learning environment “provided a structure through which computer lecturers, students and their” e-tutors could collaborate. The latter approach is not only innovative in terms of providing students with the opportunity to explore new ideas about learning as a group, but also, aimed at the teachers or lecturers of Computing modules, as it provides them with e-tutor guidelines, to assist in dealing with the huge classes that most of us have to contend with these days.

The principles of collaborative learning are increasingly influencing the way in which learning is conducted online and signal the need for higher education institutions to transform the presentation of modules, such that students are able to learn from one another and to close the gap in distance learning. There is a need to reflect on practice, so as to enhance the collaborative learning experience.

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