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Online Interaction Techniques Used at a Rural-Based University: Implications for Online Pedagogy

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Abstract. Online learning is often associated with student isolation, loneliness, and lack of adequate opportunities for interaction. This study, part of a more extensive study on online interaction, sought to establish from the distance education students' point of view the common techniques employed to promote online interaction. The Community of Inquiry (CoI) developed by Garrison, Anderson, and Archer (2001) informed the study. The study used a post-positivist research paradigm and followed a mixed-method research approach and a concurrent triangulation design. A stratified random sample of 361 students was used to collect quantitative data using a highly structured questionnaire. Qualitative data were collected from four focus groups. Quantitative data were analysed by SPSS using descriptive statistics. Thematic content analysis was used to analyse qualitative data. The two data sets were merged at the interpretation stage. Ethical issues such as study approval, ethical clearance, and informed consent were addressed. The study found that common and uncommon online interaction techniques were used. In instances where techniques were commonly used, it was indicative of the pedagogical abilities of the course instructors. On the contrary, where techniques were uncommon, it pointed out existing pedagogical deficiencies. The study concludes that online pedagogies that promote interaction and achieve higher-order learning outcomes should be built into online course design and implementation.

Keywords: interaction; virtual learning spaces; online learning; distance education; online pedagogies

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1. Introduction

Online learning is often associated with learning isolation and the need for more interaction. Strategies to encourage interaction include discussion forums, social media, team-based learning, small group activities, problem-solving, and peer assessment. Participation is an integral part of online learning; learners must fully engage. "Participation is key to learning" (Nieuwoudt, 2018, p. 53) emphasises its importance. Active participation improves learning outcomes, according to Song et al. (2019), making it a critical element in online learning.

In rural contexts, online teaching faces challenges such as digital equipment, the digital divide, instructor quality, and learner characteristics (Maphosa et al., 2020). These challenges hinder quality online teaching, potentially leading to limited interaction and negatively impacting the learning experience.

Interaction in online learning is only possible when the appropriate techniques are employed. Lack of interaction can cause a variety of issues, including decreased motivation and participation in online learning. When students can communicate with their teachers and fellow students, they are more likely to be motivated and invested in their learning (Ajayi & Ajayi, 2020). Without interaction, students could feel lonely and bored, making them less willing to put in the effort necessary to learn. A lack of motivation can also lead to a reduction in academic performance. According to studies, learners who connect more with instructors and other students tend to do better in their studies (Alabo & Emmah, 2014; Kukard, 2020). This is because interaction enables students to ask for assistance when needed, gain insight from one another's viewpoints, and practise what they have learnt.

When appropriate techniques are not used for interaction, learners who study online can experience more significant feelings of loneliness and worry, and online learning can be alienating for learners who are not accustomed to learning in this setting (Kukard, 2020). Lack of interaction exacerbates this sensation and causes more tension and anxiety, and, in addition, may make it harder for learners to acquire social and communication skills (Kumar et al., 2021). Success in school and life depends on strong social and communication skills. Learners may find acquiring these abilities through online learning challenging, particularly if they are not provided opportunities to interact with others. Hence, the purpose of this study is to establish the techniques used by students to promote online interaction at a rural university.

2. Literature Review

Using a Learning Management System (LMS) for online learning requires instructors to use its features to foster online interaction effectively. This can be achieved through methods such as chat rooms and live video conferencing (Goyal et al., 2023). Enhancing interaction improves online learning quality (Popovic et al., 2018). Modern higher education students, often called "digital millennials," thrive on peer communication through digital learning platforms (Edeh et al., 2019, p. 4852). Platforms like online discussion forums facilitate knowledge exchange and information sharing (Alabo & Emmah, 2014). These forums offer

students flexible and convenient ways to communicate and share ideas asynchronously outside the classroom (Premagowrie et al., 2014).

Using online discussion forums allows students to engage in threaded conversations, facilitating communication with both peers and instructors, leading to deeper subject comprehension (Biriyai & Thomas, 2014). Instructors should establish discussions as a vital online learning tool, allowing students to debate ideas, gain insights from thread entries, provide their input, receive comments, and respond to their peers, thus increasing knowledge production and fostering independent learning (DeWitt et al., 2014).

Online discussion forums also promote student reflection and knowledge exchange, enhancing their learning experiences (Adetimirin, 2015). Instructors should carefully plan and manage these forums to maximise student involvement and participation (Adetimirin, 2015). Social media integration is another valuable pedagogical approach to online education. Social media platforms facilitate easy information sharing and communication (Ansari & Khan, 2020). Using platforms like Facebook, Twitter, and WhatsApp helps instructors maintain communication and knowledge sharing behaviours among students, improving the learning experience through multimedia formats (Elkaseh et al., 2016).

Social media platforms promote communication, connection, and knowledge exchange among students, promoting sustained engagement throughout the online course (Jaggars & Xu, 2016). Instructors should embrace these platforms to practically enhance online learning and ensure continuous information exchange (Jaggars & Xu, 2016). Social media can also support collaborative learning by providing tools for synchronous and asynchronous collaboration, helping students working on digital projects develop a feeling of community and social presence in online learning (Greenhow & Galvin, 2020).

Instructors should emphasise teamwork in online learning, encouraging students to collaborate in group projects using the learning management system's features (Ajayi & Ajayi, 2020). Collaborative learning promotes higher-order thinking and problem solving while using technology (Holz, 2017). Team-based learning (TBL) is an effective student accountability and problem-solving strategy in online education that involves specific steps such as preclass preparation, readiness for learning, problem-solving activities, and immediate feedback, ensuring active engagement and learning (Burgess et al., 2020).

Interaction in online learning is improved through synchronous online lessons delivered through web conferencing platforms such as BigBlueButton, where teachers apply live video conferencing to present material, promote discussion, and increase student participation (Mkhonta-Khoza & Rugube, 2021).

3. Theoretical Framework

The Community of Inquiry (CoI) framework, a process model of online learning that emphasises creating and maintaining community as an intentional goal, was developed by Garrison et al. (2001). According to these authors, CoI improves

online learning in virtual environments to encourage critical thinking, inquiry, and discussion among students and instructors. CoI is based on the idea that students should form communities of practice to improve their online learning opportunities.

According to the CoI framework, three presences must coexist for meaningful online learning: social, cognitive, and teaching presences (Ice & Nagel, 2010). Teaching presence is the instructor's ability to facilitate learning and create a supportive environment, while social presence is the feeling of connection among learners and instructors (Garrison et al., 2001). Cognitive presence is the extent to which learners construct meaning through reflection and discourse. Each "presence" in the CoI model reflects interactions between students, instructors, and content.

4. Research Methodology

In the study, a mixed method approach was used within the pragmatist research paradigm. It combined quantitative and qualitative research approaches with a concurrent triangulation design. A structured questionnaire was administered to 361 Open and Distance Learning (ODL) students in a rural university, with 338 questionnaires returned and analysed (94% return rate). Data from four Focus Group Discussions (FGD) were collected using a focus group schedule. Quantitative data were analysed using SPSS software, while qualitative data were analysed using thematic content analysis. Thematic analysis can be described as a method for systematically identifying, organising, and presenting patterns of meaning or themes across a data set (Clarke & Braun, 2015). Ethical issues were addressed, such as research permission, informed consent, confidentiality, and anonymity.

5. Results

In this section, the study results are presented patterns of meaning or themes across a data set (, starting with the biographical details of the respondents to the questionnaire and a description of the FGD participants.

5.1 Biographical Details of the Respondents

Regarding gender, 65.1% (n=220) of the respondents were female, and 33.7 (n=114) were male, with 1.2% (n=4) of the respondents preferring not to identify their gender. According to the stratified sampling method used, the gender differences in the respondents were consistent with the population and sample sizes. The age group 33 to 37 had the highest percentage of respondents, 33.7% (n=114), while the age group 18 to 22 had the lowest percentage, 9.5% (n=32). Regarding the course of study, the Bachelor of Commerce represented 22.2% (n=75) of the respondents, followed by the Bachelor of Education (Secondary) (20.1%) (n=68) and the Certificate in Psychosocial Support (9.8%) (n=33). The B.Ed. The Adult Education program had the fewest respondents, 2.3% (n=8), followed by the BSc in Computer Science Education program and the Diploma in Law program, 2.7% (n=9). The number of survey respondents matched the stratified random sample strategy, as shown in the population frame. The programs with the most participants received more responses than those with

fewer participants. The first-year group had the highest percentage of respondents, 45% (n=152), while the third-year group had the lowest percentage.

5.2 Description of focus group discussion (FGD) participants

The students from the following four academic programs were chosen as the participants in the FGD by selecting active programs on the Moodle LMS in the university under investigation, which was held with four groups of ten (10) students each. The four (4) academic programs are: Bachelor of Education in Primary Education, Bachelor of Education in Secondary Education, Bachelor of Science in Information Technology and Bachelor of Science in Computer Science Education. To ensure anonymity of the participants, focus group A had codes from FGDA1 to FGDA10; the same coding was applied to groups B, C and D. Both male and female students who were mainly in their fourth year of study participated. Moodle, the official online platform for the university under study, was the primary LMS used. Participants' ages spanned from different groups and had two to four years of LMS usage experience.

5.3 Results of common pedagogical techniques for online interaction

This section presents results on the typical online teaching and learning strategies used at the rural university, starting with the quantitative results from the structured questionnaire and moving on to the qualitative findings from the focus group discussions. The assessment of the implications for online pedagogy is done in this way. The two sets of results are then combined to identify the points of convergence and divergence. The following sub-section presents and analyses quantitative results.

5.3.1 Quantitative results and implications for online pedagogy

The questionnaire asked for responses on the implications for online pedagogy in rural universities and the implications were gleaned from the common and uncommon techniques used for online instruction. The results of the responses to the common techniques used for online interaction are shown in Table 1.

Table 1: Responses on common techniques utilised for online interaction

Common approaches used for online interaction	Always		Often		Sometimes		Rarely		Never		Remarks
	No.	%	No.	%	No.	%	No.	%	No.	%	
Discussion forum	107	31.7	94	27.8	49	14.5	44	13.0	44	13.0	Commonly used
Wikis	3	0.9	67	19.8	55	16.3	115	34.0	98	29.0	Uncommonly used
Collaborative problem-solving activities	19	5.6	46	13.6	49	14.5	184	54.4	40	11.8	Uncommonly used
Group tasks on WhatsApp	113	33.4	75	22.2	78	23.1	37	10.9	35	10.4	Commonly used
Group tasks on Facebook	21	6.2	26	7.7	43	12.7	38	11.2	210	62.1	Uncommonly used

Research and presentation	37	10.9	67	19.8	53	15.7	92	27.2	89	26.3	Uncommonly used
Collaborative creation of digital products/artefacts	20	5.9	53	15.7	66	19.5	100	29.6	99	29.3	Uncommonly used
Online Group assignments	89	26.3	119	35.2	41	12.1	54	16.0	35	10.4	Commonly used
Online Group projects	52	15.4	46	13.6	69	20.4	96	28.4	75	22.2	Uncommonly used
Online Group practical activities	32	9.5	57	16.9	45	13.3	100	29.5	104	30.8	Uncommonly used
Live lessons on video conferencing platforms such as Zoom	98	30.0	105	31.1	55	16.2	38	11.2	42	12.4	Commonly used

As shown in Table 1, some techniques were reported as common and others as uncommon. In interpreting the responses, the 'always' and 'often' responses were considered common, while the 'rarely' and 'never' responses were considered uncommon. The following techniques were found to be commonly used to promote online interaction: discussion forums 59.6% (n=201), group tasks on WhatsApp 55.6% (n=188), online group assignments 61.5% (n = 208), as well as live lessons on video conferencing platforms 61.1% (n=203). In contrast, the following techniques were found to be uncommon: Wikis use 63% (n=213), collaborative problem solving activities 66.2% (n = 248), group tasks on Facebook 73.3% (n=248), research and presentation 53.5% (n=181), collaborative creation of digital products/artefacts 64.3% (n=199), online group projects 50.6% (n=171), online group practical activities 60.3% (n=204).

The following section presents the qualitative results of common online instructional techniques at a rural-based university.

5.3.2 Qualitative results of common online instructional techniques used

The qualitative findings of FGD on the most popular online instructional approaches at the rural university are presented in this section. Due to the often-used strategies, the primary theme gave rise to sub-themes like discussion forums, WhatsApp group tasks, online group assignments, and live online sessions. On the other hand, rarely used methods included group projects on the Moodle LMS, group projects on Wikis, group projects on Facebook, online research and presentations, the development of products or artefacts, and online group practical exercises.

Table 2 presents the results of the common approaches used for online interaction at the rural university. The approaches are discussed below.

Table 2: Main theme and sub-themes on the responses on common approaches used for online interaction

Theme	Sub-Themes	Related Issues
Commonly used online pedagogical approaches	discussion forum	• Given discussion questions to work on • Posting responses to the given question • Responding to instructor's comments and other students' posts
	group tasks on the WhatsApp platform	• Using WhatsApp to communicate on tasks • Sharing ideas about group task • Sharing resources • Meeting to discuss group tasks
	Online group assignments	• Working together in Google Docs • Contribution to a group document • Response to comments on the group document • Learning from other students
	Live online sessions	• Some lecturers organise Zoom lessons • Ability to ask questions for clarification • Responding to instructor's questions • The feeling of being in an actual lecture room
Uncommonly used online pedagogical approaches	Collaboration tasks on Wikis	• Never heard of Wikis • I have not done anything on Wikis
	Group tasks on Facebook	• No lecturer uses Facebook for teaching • I have not worked with colleagues on Facebook to learn • Facebook is just for social interaction
	Online research and presentation	• No research tasks given online • Did not do any research work online • No presentations done by students online
	Creation of digital products or artefacts	• No task was given to creating digital products or artefacts • Never created any digital product or artefact

5.3.2.1 Discussion forum

It was clear from the focus group discussions that the discussion forum was a commonly used pedagogical approach, and the following excerpts from the participants evidenced this;

> *In some courses, we are given discussion questions to work on, allowing us to exchange ideas on a topic.* (FGDD4)

> *One must read around and research before posting on the discussion forum. This makes it worthwhile to make a meaningful contribution to the discussion.* (FGDC7)

> *The discussion questions allow me to comment on the posts of other students, and they also comment on mine.* (FGDA4)

Using a discussion forum as a common online teaching and learning approach allowed students to prepare adequately before posting in response to a lead discussion question. Additionally, students could exchange ideas with fellow students by asking questions on other posts and responding to comments from instructors and fellow students. In the following subsection, participants' views on the use of group tasks are captured.

5.3.2.2 Group tasks on the WhatsApp platform

FGD participants revealed that group tasks on the WhatsApp platform were a common technique used for online learning. The following verbatim quotations from the participants confirm the viewpoint;

> *We can easily use WhatsApp to work on a group task because we can easily communicate and do the work.* (FGDA10)

> *We can share ideas on a group task via WhatsApp, as this platform is cheap and convenient.* (FGDC5)

> *The WhatsApp platform also makes it easy to share resources, as we can send different files to each other without any problem.* (FGDB9)

Group tasks on the WhatsApp platform were established as a common approach in online learning. The main issues noted are that the WhatsApp platform was cheap and convenient for students, as most of them had it on their phones. The WhatsApp platform made sharing materials for group projects, organising live group meetings, and communicating simple. In addition, participants' views on the use of online group assignments were sought.

5.3.2.3 Online Group Assignments

Participants in the FGD also indicated that online group assignments were a common technique. The following verbatim quotations from some of the participants support the point;

> *We can work on a common assignment in groups, making everyone participate.* (FGDC9)

> *Developing a single document on Google Docs makes us make our contributions, and the lecturer makes comments.* (FGDD10)

> *Working on a common online group assignment allows students to learn from each other and benefit from the lecturer's comments.* (FGDA7)

Online group assignments were identified as a widely used strategy that encouraged online interaction. Students could collaborate, contribute to a group document, learn from each other, and take advantage of the lecturer's comments because of this method. The strategy offered opportunities for online collaboration. In the following subsections, participants' views on the use of live online sessions are reported.

5.3.2.4 Live Online Sessions

The FGD participants also indicated that live online sessions through video conferencing platforms such as Zoom, Google Classroom, and BigBluebutton were commonly used for online interaction. This viewpoint was supported by the following excerpts from some of the participants;

> *In many courses, some lecturers conduct live lessons using Zoom.* (FGDB6)
>
> *We often have Zoom classes; during these classes, we can ask questions and seek clarification.* (FGDD7)
>
> *In Zoom classes, the lecturer may demonstrate skills we need to acquire, and it is good to see the lecturer demonstrating.* (FGDA1)

The discussions revealed that live online sessions conducted through appropriate web conferencing technologies were often used for online interaction. The ability of the students to interact with the course instructors and other students during live online sessions was considered valuable. The fact that students could see the course instructors discussing and giving examples improved their online learning experiences. Similarly, participants' views on the use of collaboration tasks were reported as shown in the following subsection.

5.3.2.5 Collaboration tasks on Wikis

According to FGD participants, who learnt online through Moodle LMS, using collaboration tasks on wikis was not a common practice. The following quotes from a few of the attendees corroborated this opinion:

> *I have seen Wikis on Moodle, but we have never used it.* (FGDA6)
>
> *I have never heard of Wikis at all.* (FGDC1)
>
> *There have been no tasks we have done on Wikis.* (FGDD9)

Collaborative assignments that encouraged online involvement were not often carried out using the Wikis functionality of Moodle LMS. Students mentioned the LMS feature, but could not confirm its use.

5.3.2.6 Group Tasks on Facebook

The FGD participants also acknowledged using Facebook group tasks as uncommon in online learning. The following verbatim quotes from some of the participants support the point of view:

> *There is no lecturer in all our courses who uses Facebook for teaching.* (FGDD3)
>
> *I have not worked with colleagues on any task we did on Facebook.* (FGDC2)
>
> *We use Facebook just for social interaction and not for learning.* (FGDB7)

It was also clear that using Facebook as a social media platform for online learning was rare. Although some students could attest to having Facebook accounts and participating in Facebook social activities, they could not attest to using Facebook

for academic purposes. Furthermore, the participants' views on the use of online research and presentation are presented in the following sub-section.

5.3.2.7 Online research and presentation

The FGD participants also disclosed that using online research and presentation as part of an online learning strategy was not a regular practice. The following quotes from the participants support the point:

> *We have not conducted any research activity online and presented the findings online.* (FGDC10)
>
> *Yes, we do research, but this is not done online, nor do we make presentations online.* (FGDA3)
>
> *No lecturer has given us some research work to do using the Moodle LMS.* (FGDD5)

Through the conversations, it was determined that using online means for research and presentations was not a typical online learning method. Although the students acknowledged conducting research, the activities and presentation of the results were done offline. Furthermore, the opinions of the participants on the creation of products or artefacts are reported in the following subsection.

5.3.2.8 Creation of Products or Artefacts

The FGD participants also reported that the creation of digital products or artefacts was not a typical practice in online learning, and the following direct quotes from some of the participants corroborate this:

> *No task has been given to us on creating digital products or artefacts*. (FGDA8)
>
> *I have never designed or developed any digital product on Moodle LMS*. (FGDC3)
>
> *I am unsure what it is like to create or develop a digital product in online learning*. (FGDD2)

The discussions made it clear that students in online learning were not exposed to the creation of digital products or artefacts. The students could not affirm that they had been allowed to make such products and did not recall doing so.

5.4 Triangulation of Quantitative and Qualitative Data

At this stage, the questionnaire and FGD findings are integrated, contrasted, and compared to find any areas of convergence or divergence. An overview of the triangulated results is presented in Table 3.

Table 3: Triangulation table of findings from quantitative and qualitative data

Findings (Quantitative data)	**Findings (Qualitative data)**	**Areas of convergence/divergence**
Most of the respondents indicated that discussion forums were confirmed as a common technique.	Participants in the FGD confirmed the use of discussion forums.	Both data sets converge on a discussion forum as a common technique.

Most respondents indicated that group tasks on the WhatsApp platform were frequently used.	Participants in FGD revealed that the use of group tasks on the WhatsApp platform was common.	Both data sets confirm the use of group tasks on WhatsApp as a common technique.
Most respondents indicated that online group assignments are a frequently used technique.	Participants in FGD confirmed that the use of online group assignments was common.	Both data sets converge to affirm online group assignments as a common technique.
Most of the respondents agreed that live online sessions were commonly used.	Participants in FGD indicated that live online sessions were a common technique in online learning.	Both data sets converge to affirm the common use of live online sessions.
Only a minority of the respondents indicated the common use of collaboration tasks on Wikis.	FGD participants revealed the unusual use of collaboration tasks on Wikis.	Both data sets confirmed that the use of Wikis for collaborative tasks was uncommon.
Only a minority of the respondents agreed that using group tasks on Facebook was common.	FGD participants revealed the uncommon use of group tasks on Facebook.	Both data sets converge to confirm that the use of group tasks on Facebook is uncommon.
Only a minority of the respondents confirmed the use of online research and presentation as a common technique.	FGD participants revealed the uncommon use of the online research and presentation technique.	Both data sets affirm the uncommon use of the online research and presentation technique.
Only a minority of the respondents agreed to create digital products or artefacts as a common technique.	Participants in the FGD participants indicated the uncommon use of the creation of digital products or artefacts online.	Both data sets converge in confirming the uncommon use of the creation of digital products or artefacts.

5.4.1 Interpreting the Triangulation Table

According to the quantitative data findings, online discussion forums were often used in online instruction at the University under investigation. As the participants described how frequently the approach was used and how it helped them, the qualitative results supported the quantitative conclusion. Convergence of the two data sets established the online discussion forum as a common technique. Furthermore, quantitative data showed that group tasks on the WhatsApp platform were an approach regularly used and the same conclusion was qualitatively corroborated by the FGD. As a result, the two data sets converged to show that group tasks are frequently used on the WhatsApp platform.

Additionally, it was quantified that online group assignments were a routinely used strategy, and participants in a Focus Group Discussion (FGD) revealed that they frequently participated in online group assignments. The two data sets were complementary in demonstrating the widespread usage of online group assignments in online instruction. The quantitative component of the study also

showed that live online sessions were frequently used as a strategy, and the FGD provided qualitative confirmation of this finding. In proving that live online sessions were a widely used method for online instruction in the University under study, both data sets supported each other.

The study's quantitative component revealed that cooperation tasks on Wikis were not frequently used. The qualitative portion of the study revealed a similar result, with participants in FGD reporting that they had never participated in group activities on Wikis. The two data sets combined to show that using Moodle Wikis as a method for online training was not widely used. Similarly, the quantitative findings showed that Facebook did not frequently use group tasks. When the FGD participants indicated the social use of Facebook but could not corroborate the use of the Facebook platform for academic reasons, the conclusion was qualitatively confirmed. The qualitative and quantitative data sets agreed on the conclusion, supported by the quantitative findings that using online group projects was unusual. The qualitative findings supported the quantitative findings that practical activities in the online group were uncommon. Both data sets supported each other in demonstrating how rare the technique was.

6. Discussion of Results

The study found that most of the respondents needed to indicate using discussion forums as a common pedagogical tool. This finding is inconsistent with findings in the literature that confirm the importance of the discussion forum in enhancing interaction in online learning. A discussion forum is a crucial technique to encourage interaction in online learning. It provides students a forum to interact meaningfully with their classmates and teachers, enabling them to ask questions, share ideas, and talk about the course material (Lima et al., 2019). Through discussion forums, students can collaborate on projects, get comments from their peers, and build a feeling of community boards. Such forums can facilitate a more interactive and engaging learning environment by giving students a place for peer interaction (Kilinc & Altinpulluk, 2021). As noted in further detail by Du et al. (2022), online discussion forums are a powerful tool for enhancing student interaction. Therefore, it should be noted that discussion forums need to be used adequately in the present study, which has implications for the pedagogical richness of online learning in the university under study. The importance of discussion forums in promoting interaction in online learning, critical thinking, and problem-solving abilities, and allowing students to communicate virtually with one another and their course instructors should be emphasised (Davis, 2021).

It was established in the study that the course facilitators should have commonly used the Wikis tool. This finding is a cause for concern, as it reflects that opportunities for interaction were not exploited through the readily available digital tools on the Moodle LMS. Sula et al. (2021) noted that a Wiki is a web-based tool that allows students to collaborate on a single document and build a corpus of knowledge by working together. As Sula and Sulstarova (2022) noted, through wikis, students learn collaboratively by participating as authors of knowledge and not as mere consumers. The use of Wikis promotes the attainment of higher-order learning outcomes, and it becomes a concern to note that such a helpful tool should have been utilised in online learning at the University under study.

The study discovered that the use of group problem solving exercises was uncommon. This contradicts research findings that advocate for students' deep involvement in the learning process. Students are given opportunities to attain higher-order learning goals through collaborative problem solving activities, where they can generate original ideas, explore concepts, and apply new information to solve problems in a technology setting (Holz, 2017). Online collaborative learning strategies incorporate groupings of students who work in significant numbers of groups (Ajayi & Ajayi, 2020).

The study found that it was common for students to have group tasks to work on the WhatsApp social media platform. This finding is consistent with similar findings in the literature that confirm the abundant use of social media platforms, such as WhatsApp, for learning. Suárez-Lantarón et al. (2022), for example, acknowledged that WhatsApp is the leading instant messaging application in the world at the moment. Similarly, Baishya and Maheshwari (2019) noted that students mainly possess mobile smartphones and can interact in online learning by collaboratively working on some assigned work. The use of the WhatsApp application for learning confirmed in the current study is in sync with views on the use of WhatsApp in online learning.

The study found that the use of group tasks on Facebook was rare, inconsistent with the findings of the literature. As Ulla and Perales (2021) noted, Facebook is one of the most popular social media sites that connects students and is easily incorporated into online learning. As noted by Todorovic et al. (2021), the Facebook platform is ideal for collaborative learning and student support, as course facilitators can bring students together and provide them with opportunities to work together while supporting them during the learning process. It is a concern to realise that popular social media sites such as Facebook were not utilised for learning in the current study. However, social media platforms are cheap and convenient ways to obtain and share information (Ansari & Khan, 2020).

The study also revealed that online education did not commonly apply the research and presentation method. This finding does not support research-based findings that advocate for meaningful participation of students in learning to promote active and deep learning (Sugeng & Suryani, 2018). The use of deep learning methodologies impacts the instructional design skills of the course instructor, as Sugeng and Suryani (2018) further observed. High levels of student engagement result from their participation in the learning process, and student engagement is a sign of good online teaching and learning (Thomas et al., 2022).

The study also found that participating in group artefact creation was unusual for students. According to Pishchukhina and Watson (2021), since analysis is at the top of the levels of the revised Bloom taxonomy of educational objectives, students need access to online tools for producing digital content. Similarly, Haleem et al. (2022) pointed out that substantial investment in technology tools for product creation and publication is necessary for online learning to be intense. Course designers and facilitators must understand the pedagogical consequences of including students in the creation of digital products in online learning.

7. Conclusion and Recommendations

The purpose of this study was to establish the techniques used to promote online interaction at a rural university. Based on the results, it is concluded that some techniques were reported to be commonly used in online instruction, while others were uncommon. A look at standard techniques, such as discussion forums, showed that the course facilitators attempted to use features of the LMS to promote interaction in online learning. The discussion forum promotes co-creation and knowledge sharing in the spirit of collaboration.

Using group tasks on the WhatsApp platform as a common technique also indicates good pedagogical practice by the course facilitators. This technique uses a popular social media platform to involve students in collaborative activities. This promotes much-needed interaction in online learning. Student involvement in learning is a departure from the predominantly lecture-type instruction that considers students passive recipients of knowledge.

Using online group assignments as a frequently used technique also indicates good practice because it promotes interaction in online learning. Furthermore, it shows a transformation of assessment practices from individual and competition-based forms of assessments. Current trends in assessment call for the use of multiple and student-centred approaches in which assessment is part of the learning process.

The common use of live online sessions using different web conferencing platforms such as Zoom was also found to be a good practice. In a live session scenario, interaction is heightened and students can interact with the course instructor and fellow students virtually. Students are free to respond to questions from the course instructor and other students and to ask questions for clarification.

Of concern in the findings was the unusual use of some techniques that would promote interaction and higher-order learning outcomes in online instruction. Realising that the Facebook platform was hardly used for learning indicates pedagogical deficiencies. Course instructors should be equipped with the skills and competencies to use different social media platforms to enhance interaction in online learning. Similarly, using Moodle LMS features such as Wikis, which were uncommon, should be integral in promoting online interaction. It was also concerning that it was reported uncommon that online research and presentation, creation of digital products or artefacts as a common technique, online group projects, and online group practical activities were not commonly used. The techniques are crucial in promoting higher-order learning outcomes in a virtual collaborative environment.

Given the results of the study and the conclusions thereof, the following recommendations are made.

a) The concept of social media for learning should be embedded in online instruction by building the capacity of course instructors and students to fully utilise the different social media platforms in pedagogically sound ways.

b) Online pedagogies should emphasise the importance of building learning communities to foster interaction and collaborative learning in virtual learning spaces.
c) The capacity of online course facilitators should be developed by possessing relevant pedagogical skills that promote higher-order learning outcomes such as online research, online group activities, and the creation of digital products and artefacts.
d) Students' interaction with course instructors, fellow students, course content, and technology should be built into online course design and implementation for enhanced online learning experiences.

The primary limitation of the study lies in its focus on a single institution in a rural setting. Conducting comparative studies that examine various techniques employed to enhance online interaction across universities with similar and different universities will provide a more comprehensive understanding of student interaction in online learning environments. Additionally, there is a need to conduct relevant research highlighting the course facilitators' experiences on relevant techniques for promoting student interaction in online teaching and learning.

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