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Original Research

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Guidelines for Sustainable Use of Mobile Instant Messaging Applications in Higher Education: A South African Case Study

Bronwyn C. Swartz, PhD
Cape Peninsula University of Technology, Cape Town, South Africa
https://orcid.org/0000-0003-0752-7211

Sweta Patnaik, PhD
Cape Peninsula University of Technology, Cape Town, South Africa
https://orcid.org/0000-0002-5520-9130

Contact: *swartzb@cput.ac.za*

Abstract

Objective: The purpose of the study was to propose guidelines to facilitate the sustainable and successful use of mobile instant messaging apps for learning and teaching based on a review of the literature and perceptions of educators. Fraser's model of redistribution, recognition, and representation served as the theoretical framework. This study provides a mechanism for the development of a socially just and inclusive online classroom environment.

Method: We conducted two focus groups (n = 4 and n = 3) in November 2021 at a university of technology in South Africa to explore the perceptions of educators on using mobile instant messaging (MIM) apps for learning and teaching, to identify challenges, and to suggest solutions. The data were thematically coded and analyzed to detect themes using Saldana's six-step process.

Results: Sustainable and successful use of MIM apps for learning and teaching requires guidelines in three areas: practical management, privacy and security, and sustainable use. Key considerations include uniformity of use, student consultation, data control, operating hours, appointment of a chat moderator, language communication, access control, monitoring communication, regular feedback, and formalizing MIM app use through institutional policies.

Conclusion: The proposed guidelines promote the sustainable and successful use of MIM applications in learning and teaching environments. The guidelines offer practical solutions to ensure that the use of MIM apps is ethical, inclusive, and effective in supporting student learning.

Keywords: *Mobile instant messaging, MIM, learning and teaching, mobile learning guidelines, social justice*

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Introduction

It is commonly understood that historical inequities persist in South African higher education despite the country being a democracy since 1994; several researchers have reported a great divide between "the haves" and the "have nots" (Bozalek & Zemylas, 2017; Gumede, 2021; Sebola, 2022). Moreover, lockdown restrictions that were a consequence of the COVID-19 pandemic made it impossible not to recognize South African students' historical, geospatial, and economic inequalities. Pivoting to online learning and teaching (L&T) during the pandemic made it possible for institutions and their students to continue the academic project (Trotter et al., 2022); however, it also made it impossible to ignore historical manifestations and mechanisms of inequality.

Under these prevailing conditions, mobile instant messaging (MIM) applications (apps) became a favored communication tool among higher education educators to support L&T (Thaba-Nkadimene, 2020). According to Tang and Hew (2022), MIM apps possess many features that educators may leverage to increase student engagement and learning. Significantly, in some university courses, MIM apps became the primary mode of communication between students and educators due to these valuable features. Despite the relaxation of lockdown restrictions and the return to face-to-face classes, MIMs continue to be part of the L&T approach in many university programmes (Enyama et al., 2021; Yu & Motlhabane, 2022).

Recent research on MIM apps by Enyama et al. (2021), Swartz and Patnaik (2021), Swartz et al. (2022), and Tang and Hew (2017, 2022) has confirmed their advantages, including their being easily accessible, low-tech, low-cost, and low-data-usage L&T tools. These tools potentially widen access to education and promote inclusivity, thereby facilitating student access, retention, and success. Swartz et al. (2022) also acknowledged some drawbacks, such as message flooding and eyestrain. The authors pointed out that, while MIM apps are accepted L&T tools in South African higher education, there are no guidelines for their use at the university where the study was conducted. Thus, the purpose of the present study is to address whether a set of guidelines can be developed for the use of MIM apps in higher education to enable socially just and digitally ethical classroom environments.

It is essential to acknowledge that, although the findings of this research are based primarily in the South African context, the principles and insights derived from this study can serve as a foundation for international application and adoption. While the nuances of educational systems and contexts may vary across countries, the fundamental concepts and considerations explored in this research can be adapted and applied globally, offering valuable guidance to educators seeking to navigate the challenges and harness the benefits of MIM app usage in higher education settings.

Literature Review

The literature review includes an overview of the MIM apps and their features, digital ethics associated with their use, and guidelines for ethical use in learning and teaching contexts.

Mobile Instant Messaging Applications

Tang and Hew (2022) argued that MIM apps are an essential means of communicating globally due to the broad penetration of smartphones and mobile broadband access. Moreover, MIM apps typically possess features that educators can leverage to increase student learning. MIM apps have been referred to as a unique quasi-synchronous communication mechanism because posted messages are synchronously available to all participants in the conversation; however, the message production process (typing) is available to only the sender (Tang & Hew, 2022; Yasuda, 2021). The recipient does not have direct access to real-time message production performed by the sender, but a push notification is displayed on the recipient's mobile device when

a new message arrives, at which point the recipient can decide to participate in the communication, either instantaneously or at a later time. Tang and Hew (2022) and Yasuda (2021) explained that this differs from synchronous communication, such as voice calls or video calls, which require the sender and recipient of the communication to be present in the same space at a mutually agreed time. Synchronous communication experiences no response-time delays because it happens in real time, unlike MIM quasi-synchronous communication in which there is often some short delay. MIM is also different from asynchronous communication, such as email communication, since most MIM messages are answered promptly—in less than a minute, for example, as in the case of WhatsApp (Andujar, 2019). In contrast, the average response time of asynchronous communication is longer, at 24 hours for email (Chang et al., 2016) and 24 to 48 hours for learner management system (LMS) discussion forums (Jeong & Frazier, 2008).

Comparing educational outcomes when using different forms of technology, Tang and Hew (2022) noted that participation rate, task completion rate, and interaction rate were much better when MIM apps were used, as opposed to other forms of educational technology, such as LMS discussion forums. Annamalai (2019) found that higher levels of intimacy and interactivity in a MIM app learning environment help meet students' psychological needs for motivation. MIM apps also afford a higher level of cognitive engagement than asynchronous discussion groups do when used for optional tasks in which a student can choose whether or how to participate in a discussion (Tang & Hew, 2022). Thus, MIM apps may be a promising tool for engaging students in social learning activities and fostering higher-level thinking through interaction.

Notably, Gon and Rawekar (2017) found that there is no significant difference in knowledge gained when using MIM apps over didactic lectures. Their study concluded that the instructional, technical, and educational advantages offered by MIM apps offset the disadvantages. The few drawbacks, such as message flooding and eyestrain, can be overcome by creating small groups and using a mobile device with a larger screen. Enabling Wi-Fi on the university campus also makes the use of MIM apps cost-effective. For all these reasons, we conclude that MIM apps are an effective teaching tool if controlled.

Digital Ethics Associated With Using Mobile Instant Messaging Apps for Learning and Teaching

The findings of a research study by Rambe and Bere (2013), which took place 7 years before COVID lockdowns propelled the use of MIM apps for L&T, demonstrated that lecturers resented using MIMs because of blurred boundaries and the merging of academic and family life. At that stage, students also expressed ambivalence about their widescale rollout in academia. Since the COVID-19 lockdowns, Loveless (2022) and Selvan and Kalayarasan (2020) argued that, when used appropriately, MIM apps enhance communication, making it easier for students to connect with educators and other students. These authors noted downsides but agreed with others (e.g., Gon & Rawekar, 2017; Tang & Hew, 2022) that the benefits outweigh the downsides. They argued that the downsides could be mitigated with proper education about the dangers of MIM apps. Significantly, Loveless (2022) and Trotter et al. (2022) advocated that problems can be overcome if educational institutions invest time to establish awareness of digital ethics.

Ethics is defined as fundamental principles and expected norms essential for good conduct in society (Velasques et al., 2010). In this section, we explore theories on maintaining ethical behaviour while promoting digital learning. Referring to the use of social media when teaching undergraduate students, Selvan and Kalayarasan (2020, p. 14) described digital ethics as "the study of elements that cannot be seen with the naked eye, or which do not exist, with varying impacts and results on social morals and established traditions." A deduction made from this is that digital ethics denotes a set of moral principles that play a significant role in guiding the conduct of educators and learners while using technology such as MIM apps. Researchers agree (Patnaik & Swartz, 2020; Swartz et al., 2022; Swartz & Patnaik, 2021; Tang & Hew, 2022; Thaba-Nkadimene,

2020) that MIM apps have an important role in higher education L&T, especially since 2020 and the onset of the pandemic; however, questions continue to arise around dangers associated with using MIM apps.

MIM apps have been cited as a source of anxiety, depression, and cyberbullying, an obstacle to independent thinking, a reason for reduced productivity, and a threat to privacy (Onne, 2019). Additionally, there are also practical considerations when using MIM apps in the L&T process, such as incompatible software (Gon & Rawekar, 2017). However, Rowe (2018) noted that technology is neutral, and educators should be aware of their choices concerning the tools and platforms they adopt. A study by Trotter et al. (2022) on emergency remote teaching (ERT), including the use of MIM apps during lockdown at a university in South Africa, reported that academics could employ strategies such as using low-data resources (i.e., small file sizes and text rather than video) and asynchronous methods to promote student engagement when face-to-face class was not possible. Significantly, however, the authors concluded that these strategies could not erase the digital divide that university students experienced during the pandemic despite efforts to minimize the impact of using high-tech tools, such as an LMS, to engage with students. Drawing on the preceding literature, then, we can infer that the implementation of guidelines would benefit an institute of higher education where MIM apps are used for L&T.

Guidelines for the Ethical Use of MIM Apps for Learning and Teaching

The literature cited above suggests gaps related to guidelines for using MIM apps exist, specifically in higher education contexts. Notably, despite the recognition by le Roux and Parry (2022) that MIM apps constitute an undeniable part of the contemporary higher education landscape, there remains a dearth of literature. Ivala and Gachago (2012) raised important concerns about uneven power distribution between educators and students that may influence online L&T and suggested the need to identify levels of consent.

With specific reference to the impact of using ERT, such as MIM apps, due to lockdown, Vlachopoulos (2022) advanced the idea that the importance of policy redesign and development cannot be overstated. He emphasized that policies and guidelines need to be tailored to the needs of all key stakeholders, including teachers, learners, administrators, leadership, and support staff. Moreover, he argued that institutions and governments should foster a dynamic ecosystem of collaboration, enabling the identification and revision of outdated or inadequate policies while effectively coordinating stakeholders in the creation of a high-quality, adaptable, and inclusive educational environment. The success of this ecosystem relies heavily on cooperation among various governmental departments as well as collaboration between the private and public sectors. Such synergistic efforts are crucial in ensuring the collective achievement of a robust and responsive educational system.

The foregoing underscores the critical importance of establishing guidelines for the use of MIM in online L&T. Guidelines derived from a study by Afzal and Abdullah (2022) on using a MIM app for L&T in schools recommend that teachers should (a) provide clear instructions and guidelines to learners, (b) have specified operating hours in which the MIM app may be used for school work, (c) carefully consider the online classroom context (i.e., availability of resources such as mobile data or Wi-Fi), before deciding whether to have synchronous or asynchronous engagements with learners, and (d) must stay up to date with the latest features and developments in MIM app software in order to be aware of features that may impact the virtual learning space. Notably, Pol and Sathe (2019) argued that curating a responsible MIM app space for general teaching purposes involves (a) setting expectations beforehand, (b) not using people's pictures without consent, and (c) being careful of oversharing.

Additionally, it is worth noting that some guidelines have been proposed for the use of MIM apps in a general professional context (Zaki, 2019). These include:

- Having group descriptions that are clear and concise.
- Keeping group chats limited to the purpose of that group only.

- Having rules around when to delete messages.
- Appointing group administrators to monitor group activity.
- Using broadcast lists/channels for one-way conversations.
- Backing up messages.
- Inviting members via a group link.
- Having general texting rules.
- Being aware of the settings, such as privacy, media auto download, and contact blocking.

Zaki's (2019) guidelines provide a useful starting point for ensuring that MIM apps are used effectively and safely for learning and teaching. However, aligned with the view of Afzal and Abdullah (2022), when developing guidelines for the use of MIM apps in higher education institutions, educators should consider general guidelines in tandem with the specific context of the learning environment. Based on this, each institution will have its unique requirements and challenges, and it is essential to tailor the guidelines to meet these needs. By considering general guidelines in the context of the specific higher education institution, educators and administrators can develop guidelines that are comprehensive, practical, and effective for the institution's L&T environment.

Theoretical Framework

We adopted Fraser's framework for social justice in higher education (2008) as a starting point. The framework includes three dimensions—redistribution, recognition, and representation—that are useful when researching a community of learners. We refer to this framework as the 3Rs. Economic structures that impede community members from fully participating in the community characterize the first dimension. Fraser (2008) argued that when members of a community do not have the resources to interact as peers, they suffer from distributive injustice or maldistribution. In this instance, *redistribution* would be the corrective action. In discussing the second dimension, Fraser (2008) claimed that when institutionalized hierarchies of cultural value prevent members of a community from interacting in terms of parity, they deny members of a particular community a prerequisite standing in the community. Consequently, the alienated members of the community suffer from status inequality or misrecognition. A practical example is access being denied to institutional resources, such as support services or financial aid. *Recognition* is proposed as the corrective action to overcome challenges associated with status inequality or misrecognition of vulnerable members of the community. Finally, Fraser (2008) identified a third dimension, explaining that when decision rules inhibit community members from participating as equal partners during social interaction, members are denied an equal voice in community discussions and democratic decision-making and thereby suffer from political injustice or misrepresentation. Taking steps to solicit the voices of community members is the corrective action in this instance, thereby ensuring *representation*.

The foregoing discussion serves as a platform for developing a set of proposed guidelines to protect educators and learners. During data analysis, we used these three interrelated dimensions as lenses to identify specific examples of redistribution, recognition, and representation in the qualitative data. From the findings of data analysis, we developed guidelines to promote greater equity, recognition, and democratic participation in the educational process.

Purpose of the Study and Research Questions

The purpose of this study is to provide practical guidance for educators and institutions seeking effective implementation of MIM apps for learning and teaching in higher education. The guidance is informed by the

concept of the 3Rs to promote a socially just learning environment. By identifying and addressing potential barriers and challenges associated with MIM app usage, the guidelines aim to maximize the benefits of these technologies while minimizing their challenges. Thus, the primary research question of this study involved understanding whether a set of guidelines can be developed for the use of MIM apps in higher education to enable socially just and digitally ethical classroom environments. While we acknowledge the relevance of the topic in countries such as South Africa, where this study took place and where long-standing disparities continue to impact access and equity in education, it is also important to note that even more developed countries face similar struggles in ensuring equal access and opportunities for all learners (e.g., Ezra, 2021; Imran, 2022; Yilmaz Ince et al., 2022).

Methods

Context

In the context of a broader study conducted between March 2021 and March 2022 in the faculties of Engineering, Health and Wellness, Applied Science, Business and Management Science, Informatics and Design, and Education, we collected data at a university in South Africa via an online survey distributed to lecturers who used MIM apps (WhatsApp or Telegram) for L&T. We received 99 responses. Participants from the broader study were asked if they would be willing to participate in focus group discussions, the outcomes of which constitute the analysis of the current study. Those who volunteered were asked to provide an email address at which they could be contacted. The study received ethical approval from the Research Ethics Committee of the Learning and Teaching Unit at the University (reference number 0507/2021) prior to the commencement of data collection.

Participants

Twenty-five participants who completed the online survey volunteered to join a follow-up focus group interview. However, due to schedule constraints, only seven participants from four different disciplines (Engineering, Business and Management Science, Applied Science, and Education) were interviewed.

Instrumentation and Data Collection

The development of the focus group interview schedule was guided by the research aim of developing guidelines for the use of MIM apps in higher education L&T that would promote a socially just learning environment. The protocol was framed by the 3Rs described previously and included questions based on a review of relevant literature on MIM app usage in higher education as well as studies using the 3Rs framework. These questions were then reviewed and refined through feedback from peers. The six questions selected for the focus group interviews were chosen based on the likelihood of their eliciting information on the unique advantages and challenges associated with the use of MIM apps from both an institutional and lecturer perspective. Additionally, questions were designed to explore the steps or guidelines that could be adopted to promote the 3Rs in the MIM classroom environment. The ultimate goal was to develop guidelines that would overcome barriers and challenges associated with MIM app usage to promote a socially just learning environment. The six questions in the protocol were:

1. In your experience, what are the unique advantages of using MIM apps to teach?
2. From an institutional perspective, what are the barriers or challenges associated with sustainable MIM app usage for L&T?
3. From a lecturer perspective, what are the barriers or challenges associated with sustainable MIM app usage for L&T?

4. What steps (or guidelines) do you think the institution should adopt to promote redistribution, recognition, and representation in the MIM classroom environment?
5. As a lecturer, what activities (or guiding principles) do you believe need to be followed to promote redistribution, recognition, and representation in the classroom environment?
6. Do you have any final thoughts you would like to share with us?

Two online focus group interviews (n = 4 and n = 3) took place in November 2021. The duration of each focus group interview was approximately 1 hour. Data saturation is the technique described by Saunders et al. (2017), which we used during qualitative data collection to ensure external validity. Essentially, the same questions were asked in various ways until no new information was provided by research participants. During transcription of the focus group interview recordings, we anonymized the identities of participants by using alphanumeric pseudonyms. Transcripts were sent to research participants to confirm accuracy. After accuracy was verified, we deleted the recordings of the online focus group interviews to protect the identity of the research participants.

Data Analysis

The aim of qualitative research is to develop theories to deepen our understanding of a particular phenomenon. We employed thematic qualitative data analysis, using a six-step process described by Saldaña (2009), to identify themes from patterns in the codes of the qualitative data set. The six-step approach included becoming familiar with the data and generating initial codes and categories (searching for code families, referred to as themes/concepts) by identifying patterns and relationships between codes. Themes were reviewed, defined, and labelled, and a final narrative report on the new theory was written for the study.

ATLASti cloud software was used to perform data analysis. Before the start of data analysis, we identified 16 codes from the literature review. These codes were applied to the qualitative data transcripts of both focus groups. Data was segregated, grouped, and regrouped into themes. Peer review was used during the data analysis of this study to assure the validity of research findings. Two researchers independently coded and analysed the data before reviewing each other's work and collaborating to decide upon the ultimate themes.

Results

Three themes emerged: (a) the 3Rs (redistribution, representation, and recognition), (b) the need for guidelines, and (c) sustainable higher education. These themes and the deductive and inductive codes that support them are illustrated in Table 1. During data analysis, an additional eight codes were inductively identified, two of which could not be categorised under any umbrella theme. Saldaña (2009) explained that a theme is the outcome of coding, as opposed to "something that is, in itself, coded" (p. 13).

Table 1

Alignment of Themes and Codes

Theme	Deductive codes	Inductive codes
Fraser's 3Rs	3Rs: Redistribution 3Rs: Representation 3Rs: Recognition Anti 3Rs: Anti-recognition and anti-representation	Power sharing concern Golden nugget
Need for guidelines (NFG)	Graduate attributes NFG: Digital ethics (blurred boundaries) NFG: Practical reasons NFG: Privacy concerns/digital ethics NFG: Sustainability Sustainable solution Management tool Tool that needs to be managed MIM fatigue	Pedagogical advantage Pedagogical challenge: Students pick up bad habits. Power sharing concern Golden nugget
Sustainable higher education	Sustainable solution Management tool Suggested guideline	Practicality: a downside Practicality: practical and useful tool Golden nugget

Redistribution, Recognition, and Representation

Regarding using technology in general for L&T and speaking about access, P1FG2 said, "A general thing that we all know about and we've all experienced is this gap between the haves and the have-nots just gets wider when we start using anything that's got to do with mobile learning." Despite this, however, we found that all the research participants in this study agreed that since mobile phones are widely and easily accessible, the use of MIM apps for learning and teaching promotes redistribution. The reason for this was summarized by P2FG2, who said, "It's low tech, so students don't need to spend lots of money to acquire expensive technological tools. Secondly, because most students are tech savvy when it comes to social media, they can easily navigate their way around the functionality of MIM apps." A deduction from this is that the use of a MIM app promotes access (and participation) among students of all socio-economic backgrounds in the classroom environment. This ultimately fosters social justice.

Consistent with the findings of Swartz et al. (2022), we agree that recognition and representation are connected. During code co-occurrence analysis, we noted that the codes of Recognition and Representation co-occurred 18 times, with the mean co-occurrence of any two codes being four times. This was also the maximum number of times for any two codes overlapping in this study. Thus, we believe that being heard (representation) facilitates the process of being acknowledged (recognition). An example of this was highlighted by P3FG1, who offered that when using a MIM app, students more readily and quickly brought challenges that they were experiencing, such as registration problems, to the educator's attention, and as a result, such challenges are resolved more promptly and effectively. Similarly, P1FG1 related an incident in which a timetabling problem was effectively and quickly resolved in a manner that would have taken much longer if the MIM app was not used. Moreover, MIM apps can offer a new dimension to the student-educator

relationship that educators can take advantage of when face-to-face class is not possible, as illustrated by P1FG2, who said, “Just hearing my voice, and explaining, talking through the assignment, it helps a lot.”

Finally, P4FG1 highlighted a use of MIM apps that had not previously been considered, that they are highly effective at “closing the feedback loop,” which is vital in learning and teaching. This participant shared their experience of using a MIM app during a series of practicals and explained how student-to-student and lecturer-to-student communication was improved as a result of using the app. In this example, redistribution, recognition, and representation took place simultaneously, and the respondent perceived that the experience, which could not be face-to-face for practical reasons, was socially just. P4FG1 did, however, highlight a downside to the use of MIMs: When a student’s mobile device is lost or stolen, this can cause inconveniences for the learning environment. Thus, from this, we gleaned that MIM apps cannot replace the learning management system; however, it appears they can enhance the learning experiences.

The Need for Guidelines to Ensure Sustainable Higher Education

In line with the views of Vlachopoulos (2022) and Pol and Sathe (2019), three key codes emerged under the umbrella themes “Need for guidelines” and “Sustainable higher education” as fundamental factors necessitating the development of guidelines. As can be seen in Table 1, these codes were (a) practical aspects of MIMs, (b) digital ethics surrounding the use of MIMs (including privacy and security concerns), and (c) sustainable use of MIMs.

Notably, in both focus groups, research participants expressed frustration at student expectations for immediate responses, even after standard instruction hours, because they (students) know that immediate responses are possible (Andujar, 2019) when using MIM apps. Moreover, consistent with the findings of Trotter et al. (2022) and Rambe and Bere (2013), the research participants in this study also conveyed that they felt intense tension due to their privacy being invaded at times and students not respecting personal boundaries. P1FG1 said, “Students are not understanding that as lecturers we do have a private life, we do life outside.” This finding underscores that there is an undefined area in learning and teaching practice at the university where this research took place that would benefit from the development of guidelines.

Several research participants were simpatico with the opinion of le Roux and Parry (2022), which is that MIM apps have become an intrinsic element in the L&T toolkit of the university. P1FG1 stated, “I think it will become an integral part of how we do.” P2FG1 said MIM is “now part of our pedagogy even if we go back to face-to-face,” and P1FG2 stated, “Even if we go back face-to-face, I will be doing that because it is a much easier version of a flipped classroom.” This finding further supports the need for MIM app guidelines.

A further finding that emerged from data analysis in support of a call to develop guidelines is the importance of creating safe online spaces for both students and educators (Ivala & Gachago, 2012). Supporting the viewpoint of Vlachopoulos (2022), this study found that to accomplish the development of a safe online space, the MIM app tool needs to be appropriately managed to protect all users. In line with this, P2FG2 suggested that a custodian officially moderate the MIM app platform to prevent unethical situations from developing. P2FG1 succinctly captures this sentiment by stating, “The time we are living in, harassment is such a sensitive issue, and we are very weary of the relationship between students and lecturers.”

To ensure appropriate management of the MIM app platform, one research participant (P1FG2) mentioned, “If not a policy, at the least there should be guidelines.” An illustrative example of a guideline relating to the practical management of MIM app platforms was given by P1FG2 who stated, “We found our students prefer PDFs ... easier to download ... cheaper.” Aligned with the recommendations of Afzal and Abdullah (2022), this quotation illustrates the need for the institution to offer specifications on the size of electronic classroom resources shared via MIM apps. In this example, we can see the risk of inadvertently excluding some students

from the digital classroom (a classroom facilitated by the MIM app) when data-intensive videos or audio clips are shared without consideration for the amount of data available to students.

An example of a research finding related to the promotion of digital ethics and overcoming privacy and security concerns stemmed from a quotation from P3FG1, who called for "training of lecturers on how to create safe online space." In the same vein as the findings of several studies (Afzal & Abdullah, 2022; le Roux & Parry, 2022; Pol & Sathe, 2019; Rambe & Bere, 2013), we gathered that without guidelines and a mutually decided upon set of dos and don'ts around what is allowed to be posted in the digital classroom, a lecturer or a student can inadvertently overstep a boundary. P2FG2 explained that students use memes, emojis, and short language, which may be misinterpreted by the lecturer or other students. P1FG2 added that, in her class, the predominant home language of students was not English, and, on occasion, she had to remind students not to have a conversation in the group in that language, as she and other members of the digital classroom could not understand, which sometimes caused tension. She reported that some students reminded others to speak English, as English was the only language understood by all. Both research participants highlighted the need for lecturers to act with sensitivity when addressing such issues.

Participants in Focus Group 2 agreed that a good solution would be for lecturers to engage in discussions with their respective classes at the start of each semester to decide on "rules of engagement." This is consistent with the findings of Afzal and Abdullah (2022). Furthermore, the importance of rules of engagement is underscored by insights gained from Trotter et al. (2022). P2FG2 shared an example of something he had done, which was to ask all students to sign a consent form to add them to the digital class. A section of the consent form included informing students of the Protection of Personal Information (POPI) Act. The POPI Act is South African legislation aimed at protecting the privacy and personal information of individuals (Western Cape Government, n.d.). In P2FG2's class, when students sign the consent form, they agree not to share any information learned in the digital classroom with any other person, with the understanding that information shared in the digital classroom should be used for academic purposes only.

Congruent with the guidelines suggested by Pol and Sathe (2019), all participants in both of our focus groups felt it was important for every lecturer to emphasise that group chats be limited to the purpose of the group only (Zaki, 2019). Significantly, in line with the recommendations of Afzal and Abdullah (2022), all research participants also agreed that responsible use of MIM apps for classroom communication should entail having set hours in which communication takes place. P2FG1 and P3FG1 highlighted the importance of appointing a class representative to moderate the chat and flag undesired behaviour. Moreover, echoing the sentiments of participants in Trotter et al.'s (2022) study, P2FG2 stated, "If we want it to be sustainable, we have to make sure that everybody has access [to an appropriate device with compatible software] so that no student is disadvantaged." We believe that all of these findings need to be reflected in institutional guidelines to promote the sustainable use of MIM apps in a higher education context.

Reflecting upon the results, we deduced that MIM apps are highly instrumental in contemporary higher education L&T when used responsibly and effectively (Rowe, 2018). MIM apps are a valuable tool that can be used to enhance communication and innovatively perform a variety of learning and teaching activities in a manner that is more cost effective than traditional methods. While findings also suggest some significant risks associated with using MIM apps indiscriminately, without considering unintended negative consequences, these may be mitigated by the application of carefully considered guidelines. As stated by P1FG2, "It makes me sad when I think that people want to get rid of MIM apps because the advantages outweigh the disadvantages, as long as it is regulated."

Proposed Guidelines

Drawing upon the insights gleaned from relevant literature, as well as the findings of the data analysis, we propose guidelines for the use of MIM apps in three areas: practical management (aligned with views of Afzal

and Abdullah [2022]; Gon and Rawekar [2017]; and Loveless [2022]); privacy and security, consistent with views of Afzal and Abdullah (2022) and Pol and Sathe (2019); and sustainable use (Afzal & Abdullah [2022]; le Roux & Parry [2022]; Pol & Sathe [2019]; and Rambe and Bere [2013]).

Practical Management

Institutions should:

- Practice uniform use of MIM apps, as a result of implementing institutional and faculty/school guidelines.
- Consult with students before forming a MIM app group. Develop terms and conditions that include the rules of engagement, stipulating which languages may be used in the group. Messages conveyed in a language not understood by all group members increase the chances of misinterpretation and miscommunication, risking misunderstandings, confusion, or even conflicts within the group. Language barriers can create a sense of exclusion and isolation that may result in members feeling disconnected or left out of important discussions, reducing their overall engagement and participation.
- Limit the amount of data required to engage on the MIM app. The lecturer (or MIM app group facilitator) should ensure that the size of any digital media shared in the group is smaller than a prescribed largest size. This prescribed maximum size should be context-specific for each group, depending on its purpose and student cohort. This will overcome challenges experienced by students who have limited data plans. In addition, students should be alerted if they share media larger than the prescribed maximum size—the MIM app group facilitator should control this.
- Appoint a chat moderator for each MIM app group. This person may be the lecturer/MIM app group facilitator, student class representative, tutor, or student mentor.
- Have predetermined engagement hours for student–teacher/lecturer engagement, as well as for student-to-student engagement. The engagement hours will be context-specific, for example, 8:00—20:00 for a full-time class or 17:00–22:00 for a part-time class.

Privacy and Security

- Faculty/school stipulates whether MIM apps that use end-to-end encryption may be used for learning and teaching. If, for some practical reason, MIM apps that do not use end-to-end encryption are allowed, group members must be notified that data inception, privacy breaches, and unauthorised access are possible.
- Faculty facilitate a presentation/workshop on how to use the MIM app, specifically focused on the privacy settings of the app (e.g., WhatsApp, Telegram, Messenger, and Signal) to ensure that students understand levels of privacy related to aspects such as profile visibility, last seen status, and visibility of contact list. To do this, the lecturer needs to be familiar with specific features of the app, such as a business account on WhatsApp.
- Terms and conditions should be established that cover the protection of personal and class information, outlining what may be shared with people outside the group and what must not be shared with any people outside the group. A conversation about what these should be can easily be done by using Google Forms or a similar free survey tool.
- Students provide their consent to be part of the group before being assigned to the group. They should agree to abide by the terms and conditions and a collaborative conduct protocol and acknowledge that they are aware of any risks. One risk might be participation in a group in which end-to-end encryption is not used.
- Chat moderators control access to the group and remove group participants who do not belong.
- Chat moderators ensure all communication is related to the purpose of the MIM app group.

Sustainable Use

Institutions should:

- Implement mechanisms to obtain regular feedback from students and lecturers on the use and effectiveness of MIM app groups. Regular institutional surveys can help gather feedback and identify areas for improvement.
- Offer ongoing training and professional development opportunities for lecturers to enhance their proficiency in using MIM apps for educational purposes. These could include workshops or internal seminars where lecturers share best practices.
- Develop a policy to regulate and formalize the primary use of MIMs in the classroom environment, or expand on existing institutional social media policy to cover the use of MIM apps. Ensure that this policy takes into account accessibility requirements for all students. Promote the use of accessibility features (for example, a text alternative to pictures that are shared) to ensure that all students have access. The institution should provide guidance and support to lecturers on creating inclusive content.
- Periodically review and update institutional policies related to the use of MIM apps to ensure alignment with evolving technologies, privacy regulations, and educational needs. Engage all relevant stakeholders in this process. This may include student representatives, the IT department, lecturers, academic developers, and management.

Discussion

The following section delves into a discussion of the research findings around the proposed guidelines, which were developed by drawing on insights from data analysis and relevant literature. Recommendations based on these findings are presented.

Redistribution, Recognition, and Representation

The research findings presented above highlight the impact of MIM apps on the 3Rs—redistribution, recognition, and representation—in the context of L&T. Despite concerns about the digital divide, participants in the study agreed that the use of MIM apps promotes access and participation among students of all socio-economic backgrounds. MIM apps offer a low-cost, easily accessible technological tool that enables students to engage with the classroom environment. This fosters social justice by providing equal access and participation opportunities to all students, essentially bridging the gap between the haves and have-nots.

Moreover, our analysis also revealed a strong connection between recognition and representation. Participants emphasized that being heard (representation) facilitates the process of being acknowledged (recognition). The use of MIM apps also opens up new dimensions for student-educator relationships, particularly in situations where face-to-face interactions are not possible. From our review of the findings, MIM apps enable students to voice their challenges and concerns more readily, leading to prompt resolutions, more effective communication with educators, and improved student-educator relationships. The capacity of MIM apps to close the feedback loop in practical activities was also identified as a mechanism to enhance the learning experience and engender a sense of social justice. Based on these results, we recommend the continued use of MIM apps to promote the 3Rs in higher education contexts. We believe that MIM apps cannot replace the LMS entirely, but they can complement and enhance traditional teaching methods.

The Need for Guidelines to Ensure Sustainable Higher Education

Our research findings underscore the clear need for MIM app guidelines to ensure sustainable higher education when using MIM apps. Frustrations expressed by research participants regarding student expectations for immediate responses outside standard instruction hours highlight the importance of

establishing clear boundaries and the critical need for guidelines around communication on MIM apps. Privacy invasion and personal boundary issues were also identified, emphasizing the necessity of creating safe online spaces for both students and educators. Guidelines can help address these concerns and ensure the ethical and responsible use of MIM apps. Practical aspects of MIM app use, digital ethics, and sustainability emerged as key codes during the data analysis. Practical guidance, such as specifying the size of electronic resources shared via MIM apps, is needed to avoid unfair discrimination among students. From the review of these findings, we advance that it is crucial to prevent exclusion (based on students' ability or inability to access data and similar digital ethics) and ensure equitable access to the digital classroom. A recommendation in regard to this is to include training for lecturers and students on creating safe online spaces. Our study confirms the need for appropriate management and moderation of MIM app platforms to prevent unethical situations and ensure privacy and security.

Based on our data analysis, we recommend that lecturers engage in discussions with their classes at the beginning of each semester to establish a collaborative conduct protocol. Consent forms and the appointment of class representatives are among potential tools to enforce guidelines and protect privacy. The development of guidelines aligned with recommendations from previous studies supports the sustainable use of MIM apps in higher education. Ultimately, participants acknowledged that MIM apps have become an integral part of the L&T toolkit, even as face-to-face instruction resumes. This further emphasizes the necessity for guidelines to ensure responsible and effective use of MIM apps.

Limitations of the Study

This study's scope was limited to a single university in South Africa. While the guidelines presented in this study were developed within a specific institutional context and may not directly align with the policies and practices of higher education institutions globally, it is worth noting that these guidelines were developed alongside a thorough review of the literature and were intentionally crafted in a manner that encompasses general principles and best practices. They were designed to capture the overarching principles of effective communication and privacy management in higher education settings and are likely to hold relevance beyond the specific institution examined in this case study. Some institutions may have different policies regarding the use of technology in the classroom, which could impact the implementation of the guidelines. Additionally, the cultural norms and expectations of students and educators may vary among institutions, which could also affect how the guidelines are received and used. It is important to take into account these contextual factors when considering the applicability of the guidelines beyond the specific institution in this research study. Although these guidelines must be adapted and customized to suit the unique needs and circumstances of individual institutions, it is anticipated that their broad applicability can serve as a foundation for guiding the development of such institution-specific guidelines and policies within the international higher education community.

To successfully adopt the guidelines, higher education institutions must undertake a comprehensive analysis of their unique context. First, it is crucial to ensure alignment between the proposed guidelines and the organization's existing institutional policies, to identify potential conflicts. Second, a meaningful stakeholder engagement process should be conducted involving educators and student representatives, and, if relevant, administrators and IT personnel. Following this, we recommend pilot testing to assess the practicality and effectiveness of the guidelines. By implementing them on a smaller scale and gathering feedback, institutions can refine and customize the guidelines to optimize their impact. Finally, we propose that institutions establish mechanisms for evaluation and the continuous solicitation of feedback as vital components of long-term success. By following these recommended steps, institutions can perform a comprehensive analysis of their particular environment, ensuring a thoughtful and contextually relevant adoption of the guidelines. This

holistic approach promotes responsible use of MIM apps, enhances pedagogical practices, and creates a supportive and secure learning environment for all stakeholders involved.

Implications for Research, Theory, and Practice

The implications of the proposed guidelines are twofold, building upon the theoretical framework of social justice in higher education (Fraser, 2008). First, they advance the theoretical understanding of effective communication and privacy management in the use of MIM apps in educational settings by applying the dimensions of redistribution, recognition, and representation. Second, they provide practical guidance for educators and institutions to improve their pedagogical practices and ensure the responsible use of MIM apps. We believe the proposed guidelines provide a framework that can be used internationally by institutions that seek to address the challenges and complexities associated with the use of MIM apps. By aligning with the principles of the 3Rs framework, our guidelines not only address the challenges and complexities associated with MIM app usage, but also promote greater equity, recognition, and democratic participation in the educational process. Furthermore, they draw attention to potential risks and challenges, such as privacy breaches, miscommunication, and data limitations, and offer strategies to mitigate these risks, thus creating a safer and more secure learning environment.

The proposed guidelines offer practical recommendations that, when customised, can be implemented by educators and institutions internationally to enhance pedagogical practices. They provide guidance to foster effective communication, promote privacy and security, and ensure sustainable use of MIM apps in educational contexts. By following the guidelines, educators and institutions can create a conducive learning environment that encourages active participation, collaboration, and engagement among students. This, in turn, can lead to improved learning outcomes and student satisfaction. We propose future research to test the effectiveness of these guidelines further in internationally diverse contexts.

Conclusion

The proposed guidelines emphasize the need for uniformity in app usage, as well as student consultation, data control, and the appointment of chat moderators. Furthermore, considerations such as language in communication, access control, monitoring, regular feedback, and institutional policies can contribute to creating an inclusive and supportive digital classroom environment. By adhering to these guidelines, educators and institutions can foster an environment that is conducive to effective communication, privacy protection, and sustainable use of MIM apps. Ultimately, if the aim of an educator or institution is to promote an inclusive, engaging learning experience that leverages the potential of MIM technology while upholding ethical and pedagogically sound practices, these guidelines for MIM apps are a first step toward achieving that aim.

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