Preferred knowledge formats in mobile learning in Namibian public universities: a students' perspective

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Introduction

The parallel reductions in mobile device costs and increases in their computing power have presented them as an important tool for disseminating knowledge (Iqbal and Qureshi, 2012). The power of mobile devices to facilitate the migration of the poor and marginalized persons into the Knowledge Society has been lauded (Vaithilingam *et al.*, 2022). Because of their ability to broadcast knowledge to the underserved members of society, mobile devices have been recognized as one of the most potent tools for learning and development.

In the Knowledge Society, universities are important conduits of knowledge. As with every sector of contemporary society, universities have continuously sought to appropriate new technologies to expand the reach of learning information. At the height of the COVID-19 pandemic, smartphones were the main platform through which university students accessed learning material, especially in the developing world (Kaisara and Bwalya, 2021). The increased importance of smartphones in knowledge dissemination raises many important questions, such as how knowledge should be formatted and presented for effective mobile learning. Knowledge is often presented in various formats, and the improved multimedia capabilities of modern mobile devices means that many of such devices are able to handle several knowledge formats. Needless to say, each knowledge format has its own strengths and weaknesses, which will inevitably influence students' preferences.

The purpose of this paper is to ascertain the knowledge formats that Namibian higher education students prefer to receive through mobile learning. As aptly noted by Park (2019), mobile learning content should be delivered in cognizance of its peculiar characteristics. Currently, many academicians and practitioners have insufficient knowledge of how to effectively package knowledge suitable for mobile devices (Criollo-C *et al.*, 2021). We believe that such an understanding could help stakeholders to package knowledge in a way suitable for mobile learning, thereby potentially increasing students' satisfaction with mobile learning.

Research design and methods

Because of the limited literature around the topic, the study adopted a qualitative design to probe deeper and allow participants to fully express themselves without restricting them to *a priori* variables. Four focus group discussions were held with students from the only two public universities in Namibia. Purposive sampling was used to guide the selection of participants. For inclusion in the study, participants had to have enrolled for at least one online course, and primarily used a smartphone for accessing learning information. All discussions were recorded and supplemented by note taking, and data saturation was

reached after the fourth group discussion. All interviews were transcribed by the lead author, and proofread by the co-author. To enhance the credibility of the findings, 'member checking' was employed, whereby participants were invited to scrutinize the transcripts. Taking an inductive approach, a thematic analysis was used to identity and capture the themes relevant to the research problem.

Results and discussion

The results indicate that there is no universally preferred knowledge format in the context of mobile learning. Rather, various factors influence the type of knowledge preferred, as indicated in Table 1.

Many students revealed that they preferred video-format knowledge for a number of reasons, such as getting "to the point faster" (Interviewee 3, Focus Group 1), and "videos sometimes [having] demonstrations" (Interviewee 5, Focus Group 1). Furthermore, repetitively watching videos allows students to recall the knowledge they have acquired, as expressed by Interviewee 2 (Focus Group 2), who stated that "the more you watch it, actually you can hear the play in your mind". Although many students expressed a liking for video lessons, several concerns were raised, with the storage capacity of students' mobile a recurring theme across all four focus groups. Furthermore, downloading videos consumes data more than other forms knowledge, which is a major concern in a region where data costs are exorbitantly high. These findings confirm the views of Park (2019), who argues that the high bandwidth and connection costs associated with video streaming means that they could prove too costly for many people in developing countries. Some students (Interviewee 4, Focus Group 1; Interviewee 5, Focus Group 4) expressed a preference for audio knowledge because they could multi-task while listening to an audio lesson. In resource-constrained contexts like Namibia where Internet data bundles are expensive, some students prefer knowledge in text format as it is relatively cheaper to download. However, long documents may lead to eyestrain.

Furthermore, most students opined that most of their teachers provided explicit knowledge through PowerPoint slides which where uploaded in the universities' learning management systems. While some students felt that PowerPoint slides were "friendly", others argued that sometimes academics captured "unnecessary information" (Interviewee 2, Focus Group 2) and thus slides not user-friendly (Interviewee 1, Focus Group 2). Many students felt PowerPoint was unfriendly due to either the information being too condensed, or there being too much information on each slide. The interviews were concluded when repetitive

Table 1 Overview of various knowledge formats

Knowledge format	*Perceived advantages*	*Perceived disadvantages*	*Sample students' recommendations*
Audio	■ Allows multi-tasking ■ Can clarify ambiguous textual knowledge		■ "I can just let the phone be there and I am listening while I am here. So I prefer audios"
Text	■ Takes up relatively less space in the phone's memory	■ Small and/or text may cause eyestrain	■ "They must not be large. . ."
Video	■ Allow for demonstrations ■ Visuals enhance recalling	■ Take long to load ■ Take up too much storage space ■ Consumes too much data	■ "Make shorter videos . . . like a short 30 s video, they do not require long attention" ■ "Make clear recordings . . . minimize background noise"

Source: Authors' own

information was obtained in cycles from different participants. This suggests a need for a balanced approach, which obliges teachers to be skilled in formatting such knowledge.

In other contexts, game-based and integrated learning environments such as Virtual or Augmented Realities, AI-based learning environments and Intelligent Agents have been the preferred platforms for handling heterogeneous information formats in learning environments. In the Namibian context, such progressive platforms were not mentioned by students.

Practical implications

Teachers must be informed on how to develop appropriate knowledge formats for mobile learning. Each format has its own advantages and disadvantages, and teachers must be flexible to use different formats as dictated by their circumstances, such as the profile of their students and macro environmental factors such as data costs. Seeing as videos enjoy high popularity, efforts to reduce bandwidth and Internet connection costs may prove helpful in making videos more accessible. The mismatch between student preferences and knowledge formats commonly provided by teachers means that mobile learning may fail to bring about its purported benefits. All this suggests the need to enact the appropriate context-aware policies at both institutional and national levels.

Conclusion

Due to the relative novelty of mobile learning, studies on the various knowledge formats in mobile learning are scant thus charting potential pointers for future studies in knowledge formats. This study revealed a disconnect between the practices of teachers and preferences of learners. Consequently, this study highlights the importance of understanding knowledge formats suitable for mobile learning, as well the factors driving it. One of the limitations of this study is the sample size due to its qualitative nature. Therefore, whilst the results provide invaluable insights, they may not be generalizable to other contexts. Future studies may adopt a quantitative design to assess the generalizability of the results.

Keyword:
Knowledge,
Format,
Mobile learning,
Students,
Namibia

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