

# A bitter pill: not all students ready for e-learning



e-Learning on tablet PCs has for some time been touted as the next revolution in education – a digital innovation to enhance the teaching and learning process. However, a study at a South African college showed that many students found navigating these portable electronic devices challenging and made only superficial use of the wide array of functionalities available to them – *Kim Trollip*



In 2012, while lecturing at Rosebank College in Pretoria, Kudzanai Shambare noticed that while some of his students were tapping along on the touchscreen tablet PCs (tablets) issued to them by the college, many of them simply left the devices lying idle on their desks.

Kudzanai, a trained economist at the HSRC with an interest in social development policy, decided to team up with his brother Richard, a business management expert, to try and figure out what was stopping students using the tablets to their full potential.

The brothers used the opportunity to study a new e-learning innovation within a higher education institution (HEI) in an emerging economy setting. Their study found that, despite the inherent usefulness of mobile devices for the purposes of e-learning, some 45% of respondents spent less than an hour a day on their college-issued tablets.

Approximately 30% spent between one and three hours on the devices and only 25% used them for more than three hours a day. It appears that participants using tablets for more than three hours a day were those who had not only adopted them, but had also committed to their use as an e-learning tool.

### Using mobile devices to enhance learning

Mobile devices are an increasingly ubiquitous presence in our lives. Forward-looking HEIs are working to use mobility to enhance the way their students learn and work.

By incorporating mobility into their learning strategy in the 'right way', it is believed that universities and colleges can multiply the benefits of e-learning by helping students to perform at higher levels.

Traditionally, all Rosebank College's learning material was provided in printed, paper-based format. At the beginning of the 2012 academic year the HEI introduced e-learning, providing students with Lifepad tablet PCs on registration. Given the popularity of mobile electronic devices the move was part of a broader marketing strategy



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to attract prospective students to the institution.

The models that the researchers generated during the course of their study suggest that the 2012 roll-out of the tablets at the college was flawed.

When the tablets were introduced, learning materials were pre-loaded onto them electronically. Paper-based learning materials were not issued, so students' only access to study materials was through the tablets. Two to three months into the year, a significant proportion of students expressed dissatisfaction with the new e-learning devices and many began requesting paper-based learning material. Usage rates of tablets among students steadily declined.

Overall, the adoption rate of the tablets at the HEI was much lower than expected and raised questions about the factors influencing adoption of e-learning approaches.

### What went wrong?

The researchers posit that an individual will be more likely to make the effort to learn to use a new technology or innovation if, firstly, they perceive it

to be useful (perceived usefulness) and if, secondly, it is easy to use (ease of use). They also looked at behavioural intention.

The study found that the level of knowledge among students about tablets was not as high as expected. Some 69% of the 344 students surveyed had no prior experience of using the devices and were only exposed to the technology once they started studying in higher education. This indicates a clear need for HEIs to provide basic training on tablets right at the start of the students' first year and not to assume that because students are members of the 'Google generation' they've had extensive exposure to a variety of information and communication technologies (ICTs).

'As a result of our findings, we would encourage educators, when designing e-learning programmes, to anticipate low levels of adoption in the introductory phases of the ICTs, because at this point, it is often innovators and early adopters who use the technology,' explains Kudzanai Shambare. 'For successful and wider integration, we would advise HEIs to organise marketing campaigns that highlight product features and



practical workshops that demonstrate their usefulness, as these are important determinants of adoption.’

### Mobile learning must be integrated into the broader learning environment

e-Learning can be an effective way to reinforce learning experiences within the broader education context, the brothers found, but the institution rolling out the innovation must properly integrate e-learning solutions into the larger ecosystem of the higher education environment.

The tablets provided by Rosebank College were versatile, multi-purpose devices that could be used for reading pre-loaded textbooks and study notes, for information research on the Internet, for content creation (taking notes during class), and for performing many other functions.

As shown in Figure 1, 72% preferred reading study notes on tablet PCs, but only about 11% used the other applications, such as browsing the Internet, typing homework and doing research.

The Lifepad tablet PCs that were issued to students at the Rosebank College have to be linked to a wireless (WiFi) network for access to the Internet and do not support SIM cards, but the WiFi network had not yet been rolled out to students and was only available to staff. This meant that one of the

key functionalities of the devices, web browsing, was not available to the students – an obvious case for better integration into the larger higher education environment.

### Factors influencing user-adoption of e-learning technologies

Using structural equation modelling (SEM) techniques, the researchers identified the obvious and the less obvious reasons for the low uptake and concluded that the less complicated the students perceived tablets to be, the more likely they would be to find these devices useful.

The researchers found that SEM immediately piqued the interest of other researchers internationally, as it is believed to be the first time this modelling technique has been used to study the adoption of tablet PCs within the context of e-learning in South Africa. SEM is flexible and enables modelling multiple variables and accommodating multiple inputs or factors, also highlighting the relationships between these factors.

### So what now?

Effective learning takes place when students assimilate new knowledge on an ongoing basis. Computer mediated technologies such as tablet PCs not only allow for continuous learning interactions between students and their educational content and instructors,

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but also deepen these interactions. The ability of tablet PCs to promote faster interchange of information among students, and between students and lecturers, makes them potentially important educational tools.

The e-learning courses themselves must obviously also be tablet-friendly.

The researchers propose that HEI management teams ensure that the usefulness of tablet PCs for e-learning purposes must be made obvious to the students; that wireless access to the Internet is provided on campus so that tablet PCs can be used for information research via the Internet; and since innovations takes time to be fully adopted, it can be assumed that over time, the use of tablet PC features will increase.

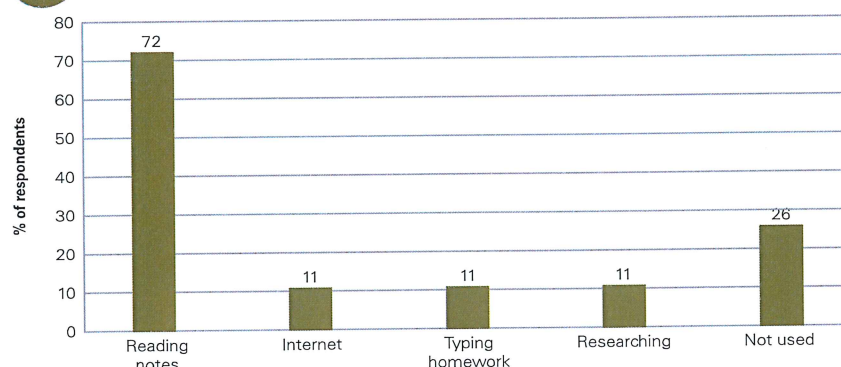
Kudzanai Shambare is optimistic that further studies, using SEM techniques, will be conducted into e-learning roll-outs to enhance the teaching and learning process at South African HEIs.

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This article is based on a research paper entitled *The adoption of tablet PCs by South African college students: an application of the technology acceptance model*, and was published in the journal *Problems and Perspectives in Management*, Volume 14, Issue 1, 2016.

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**Fig 1** Tablet PC applications used



The graph illustrates the percentage of students that use the tablet PC for each category of use. Some used it for more than one category, as indicated in the paragraph above.



Volume 14 Number 2 • April – June 2016

# REVIEW

Making sense  
of racism

Page 8

Remembering 1976:  
the Soweto uprising  
and beyond

Page 12

Youth (educational)  
activism: then and  
now

Page 26



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