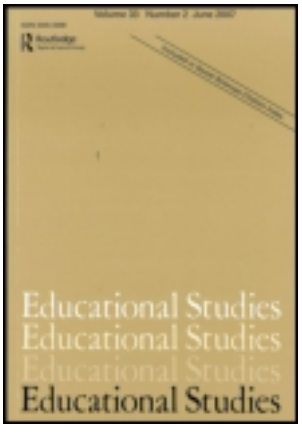

Educational Studies
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/ceds20

Adopting learning technologies: from belief to practice

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Version of record first published: 05 Oct 2010

To cite this article: Cornelius H. Bothma & Michael C. Cant (2011): Adopting learning technologies: from belief to practice, Educational Studies, 37:4, 375-389

To link to this article: http://dx.doi.org/10.1080/03055698.2010.511697

Educational Studies
Vol. 37, No. 4, October 2011, 375–389

Routledge
Taylor & Francis Group

Adopting learning technologies: from belief to practice

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A challenge faced by most heads of academic departments around the world is to manage the adoption and use of appropriate learning technologies in order to support the department's learning offerings to students. Earlier research undertaken by the authors revealed that lecturers within the Department of Marketing and Retail Management at the University of South Africa believed a learning management system (LMS) to be the most appropriate technology to use. The experience of the Chair of Department, however, is that lecturers are using the university's proprietary LMS, *myUnisa*, either to a limited extent or hardly at all. Consequently, further research was undertaken targeting the other Chairs of Departments and selected senior lecturers within the School of Management Sciences, to which the Department of Marketing and Retail Management belongs, in order to identify ways of increasing the use of *myUnisa* amongst lecturers.

Keywords: learning technologies; learning management system; LMS; University of South Africa (Unisa); distance learning

Introduction

Universities around the world are turning increasingly to various learning technologies to support their teaching activities (Glenn 2008). The technologies being adopted by universities are many and varied, and include, amongst others, learning management systems (LMSs) (Monsakul 2007), e-mail (Collis and van der Wende 2002), compact discs (CDs) and digital versatile discs (DVDs) (Klassen 2001), mobile wireless technologies (Kim, Mims, and Holmes 2006), video conferencing (Baltaci-Goktalay and Ocak 2006), social media (Hoffman 2009), as well as podcasting and instant messaging (Hamid, Chang, and Kurnia 2009).

The University of South Africa (Unisa), a distance-learning institution and one of the world's largest "mega universities" with a population of approximately 250,000 students (Unesco 2005), has also been exploring the use of several technologies in support of the institution's teaching efforts. While Unisa as a whole has adopted a number of the above-mentioned technologies to facilitate learning, the available technologies are not always adopted uniformly by lecturers throughout the various colleges and academic departments within Unisa.

The reason for this is that, even though Unisa may officially endorse a particular learning technology, it is ultimately the lecturers within a department who determine the extent and effectiveness of the technology's use, and their respective views of the various technologies may differ.

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ISSN 0305-5698 print/ISSN 1465-3400 online

DOI: 10.1080/03055698.2010.511697
http://www.informaworld.com

There may be some lecturers who are technologically challenged and who steer away from the use of technology in their teaching activities. Other lecturers, however, may be more comfortable with certain technologies than with others or may adopt one or more technologies not directly supported by the institution, thus resulting in the disparate use of technology to support learning. The varying influence that lecturers have on the use of technologies to support learning is not unique to Unisa and several authors have reported on this in their own respective contexts (Bakioglu and Hacifazlioglu 2007; Baltaci-Goktalay and Ocak 2006; Collis and Van der Wende 2002; Klassen 2001; Knipe and Lee 2002; Monsakul 2007). For example, Bakioglu and Hacifazlioglu (2007, 2) refer to the "addiction or resistance …" to technology amongst faculty, while Baltaci-Goktalay and Ocak (2006, 37) similarly refer to faculty, some of whom "will accept new ways to teach with technology while others resist".

Thus, the challenge facing the Chair of Departments (CoDs) of the various academic departments within Unisa is how to manage the lecturers' use of learning technologies within their respective departments. The CoD of Marketing and Retail Management (DMRM), faced with this challenge, decided to undertake research to better understand the views of lecturers within the DMRM as to which learning technologies they felt were best to use to support the department's students. The main finding of this research was that an LMS is viewed by lecturers as the most appropriate technology to use.

The drawback of the research outlined above is that it does not adequately address the way forward for the Chair of the DMRM; it provides no clear procedures or guidelines for the adoption of an LMS within the department. The previous research by the authors also highlighted an apparent anomaly that exists, namely that while there may be a belief amongst lecturers about the appropriateness of one or more learning technologies for teaching (in this case, an LMS), the practice amongst lecturers may be very different (reflected in their lack of use of Unisa's proprietary LMS, namely *myUnisa*, within the DMRM). There is thus a need to identify ways of encouraging lecturers to use *myUnisa* more actively; in other words, to turn their belief of the appropriateness of an LMS into practice.

As a result, further research was subsequently undertaken amongst the CoDs within the School of Management Sciences (SMS) as well as amongst lecturers within the department in order to build on the findings of the earlier research. Using a survey instrument and personal interviews, the respondents were asked to consider the earlier findings and to suggest ways of facilitating the adoption of an LMS within the department. Their responses provided useful input which was used to develop a framework to facilitate the adoption of an LMS within the department. The rest of the article summarises the earlier research, describes the methodology followed in terms of the current research, outlines the findings and proposes a framework for the implementation of learning technologies within the DMRM (or any other academic department).

Revisiting the earlier research

The earlier research undertaken by the authors attempted to determine the views of all lecturers within the DMRM (excluding those of the authors of the article). The article reports that the Delphi method was used to gather the data over several interventions as it was felt that the iterative nature of the Delphi method would prove effective in ensuring that each lecturer would have an opportunity to contribute to the overall decision-making in selecting the most appropriate learning technologies for the DMRM to use.

The article further reports that the research process that was followed in the gathering of data comprised the following six steps:

- Step 1: Each of the DMRM lecturers participating in the research was initially asked to identify at least five learning technologies that they believed would be appropriate to improve the learning offerings of the department within the distance-learning context. At the same time, they were asked to identify the major challenges of implementing these technologies, as well as to suggest what might be done to address any of the challenges identified.
- Step 2: The responses from the lecturers were then combined into a single table. The above process thus ensured that a broader spectrum of challenges associated with each of the suggested technologies was identified.
- Step 3: This single table was then re-sent to all the lecturers, asking them to "fill the gaps", especially where no challenges had been identified or where they felt there may be some shortcomings or misunderstandings. They could add additional technologies not yet identified if they so wished. Once again, the answers were synthesised into a single table. A shortened list highlighting just the technologies without any additional explanation is attached as Appendix 1.
- Step 4: The next step involved listing the various technologies identified by the lecturers (25 in total) in the form of a checklist and then asking the lecturers to identify their preferences for the 10 most relevant technologies. A frequency table was subsequently created and the 10 most relevant technologies were then indicated.
- Step 5: Using this revised list of the 10 most appropriate technologies, the lecturers were then asked to prioritise the list from 1 to 10, with 1 being the most appropriate and 10 being the least appropriate. Once again, a new list was developed based on the mean score for the priorities indicated for each technology across all of the lecturers concerned. From this revised and prioritised list, the five most relevant learning technologies from the viewpoint of the lecturers were then identified. Table 1 outlines the findings from Step 3 to Step 5. The five technologies were then brought together with the challenges that the lecturers had originally identified in Steps 1–3 for each of these technologies. This list is outlined in Appendix 2.
- Step 6: Finally, the lecturers were asked to compare the five technologies with each other in a pairwise fashion. This exercise resulted in 10 separate comparisons. In each pairwise comparison, the lecturer was asked to allocate a score of "1" to the technology that they regarded as more appropriate of the two, and "0" was allocated to the less appropriate technology. In the case where both technologies were considered equally appropriate, a score of "0" was allocated to both. This input was then transposed into a data table and analysed statistically using the Chi-square method. The purpose of the Chi-square analysis is to determine whether the observed frequencies (i.e. counts for the individual technologies selected by lecturers) differ markedly from what one would expect by chance. Table 2 below outlines the results obtained from the Chi-square analysis.

The findings outlined in this article highlighted the importance of an LMS as the technology of choice according to lecturers within the DMRM. This was considered not to be surprising as Unisa already had an excellent proprietary LMS in place called *myUnisa*. This is a powerful online tool that is available to all registered students, and

Table 1. Ranking and weightings of the top 10 learning technologies.

Overall rank	Proposed technology	Mean ranking[a]
1	**Learning management system (LMS)**	1.9
2	**Compact disc/digital versatile disc (CD/DVD) technologies**	5.0
3	**Email (EMAIL)**	5.6
4	**Web-based learning sites[b] (WEB)**	5.7
5	**Automated telephone self-help services[c] (AUTO/TEL)**	5.7
6	Simple messaging service (SMS)/multimedia messaging service (MMS)	5.8
7	Satellite/video/teleconferencing	6.0
8	Online discussion classes	6.0
9	Webinars/podcasting	6.1
10	Cellular/mobile technology	7.2

Notes: [a]Lower values = "more appropriate", while higher values = "less appropriate" technologies.
[b]It is not clear what lecturers envisaged this technology would include.
[c]This technology refers to those telephone services which guide callers through a series of questions to find the most appropriate assistance (this could also include interactive voice response systems).
The technologies in bold represent the five technologies selected for further analysis using the Chi-square method.

Table 2. Chi-square test statistics.

	CD/DVD	AUTO/TEL	WEB	EMAIL	LMS
Chi-square (χ^2_{calc})	3.769	2.769	0.308	13.000	9.308
df	1	1	1	1	1
Asymptotic value	0.052	0.096	0.579	0.000	0.002
Residual	−7.0	−6.0	−2.0	−13.0	11.0

lecturers at Unisa will have had to use it from time to time in order to execute certain required tasks.

The other technologies making up the top five technologies list as selected by the lecturers included CD/DVD technologies, automated telephone self-help services, email and Web-based learning sites.

Proposing a way forward

The problem with the previous research is that although it draws a very specific conclusion, namely that the most appropriate learning technology from the view-point of lecturers is an LMS, it provides no direction for the CoD as to how to go about encouraging the use of the Unisa LMS, namely *myUnisa*, within the department. The experience within the DMRM is that the lecturers use *myUnisa* to a very limited extent or hardly at all. Thus, an anomaly exists, namely the research suggests that lecturers believe that an LMS is the most appropriate learning technology to use to support students in their learning activities, yet the same lecturers use *myUnisa* very little in their teaching activities. The question arises as to how this situation can be changed. It is this question that gave rise to this further research.

Methodology

This study expanded on the previous quantitative research by using a qualitative method involving personal interviews with the CoDs of the SMS. In addition, an additional seven personal interviews were also conducted with selected senior lecturers within the school to ascertain their thinking as to how the CoD might go about increasing the use of *myUnisa* amongst lecturers. The total sample thus comprised 13 respondents.

There are several reasons for selecting these respondents. Firstly, it is expected that the other CoDs in the SMS all face similar challenges as the Chair in the DMRM. Secondly, it would be interesting to learn how they would go about encouraging the use of an LMS within their respective departments. Thirdly, it was deemed appropriate to include the lecturers themselves and to obtain their views on how the CoD might be able to change the current practice within the department and to increase the lecturers' use of *myUnisa*.

To this end, a single survey instrument was created (see Appendix 3). The survey instrument provided an introduction to the research by summarising the research that had gone before and posing four open-ended questions and one closed-ended question for respondents to answer. These questions addressed the issues outlined in the previous paragraph. Their answers were recorded for later analysis.

Findings

The five questions and the main findings associated with each are outlined below:

Question 1: In your opinion, is an LMS (such as **myUnisa***) the most appropriate learning technology to use to support the teaching activities in your department?*

The respondents were unanimous in their answer, namely "yes, an LMS would be the most appropriate technology to use".

Question 2: In your opinion, are the lecturing staff in your department currently using **myUnisa** *in their teaching activities?*

There were three options that the respondent could choose from, namely "extensively", "to a limited extent" and "hardly at all". All but one of the respondents indicated that it was their view that lecturers used *myUnisa* either to a limited extent or hardly at all.

Question 3: If you believe that your colleagues in your department are using **myUnisa** *either to a limited extent or hardly at all, what do you think the reason for this is?*

The replies to this question were found to be manifold, but can be grouped as follows:

Lecturers lack exposure to the technology

The comments made by respondents highlight the fact that lecturers either are not adequately exposed to the technology or do not know how to use the technology

properly. This assertion is supported by comments such as they are "not au fait with how it works", and they "lack knowledge on how the system works". Some of the respondents reported that lecturers were not aware of the full capabilities of the technology. This view is supported by statements such as "some of the lecturers are still unsure about the full application of *myUnisa*" and "most see it as a passive webpage to upload study material and tutorial letters".

Lecturers lack training on myUnisa

A similar problem to that of exposure is the question of a lack of training. Several respondents reported that "they need more training" or "they are not trained to use it".

Lecturers lack the time to use myUnisa

Another potential problem identified by the respondents is that lecturers do not have sufficient time to spend on *myUnisa*. Comments supporting this assertion include "lecturers may have time constraints" and "it takes up a lot of available time to interface on a LMS".

Lecturers see no value in myUnisa

One of the respondents commented on the fact that "some of the lecturers do not see the importance or value of using *myUnisa*". At the same time, other respondents commented that there was "limited interaction from students for the smaller modules" and that the use of *myUnisa* by students "… varies depending on the nature and size of modules".

Question 4: How would you encourage the use of* myUnisa *within your department?

This question also solicited a number of different replies as outlined below:

Ensure that all lecturers undergo training on myUnisa

Comments made by respondents supporting this activity included: "make training compulsory for the lecturing staff", "help the lecturers overcome the fear of using it by showing them how it works" and "regular training as part of induction process for new staff".

Make the use of myUnisa *a key performance area*

A number of respondents suggested that the use of *myUnisa* should be a key performance area. This would mean that lecturers would be required to use *myUnisa* as part of their performance management agreement.

Establish a mentoring programme within each department

A number of the respondents suggested that besides for training, each department might consider some form of mentorship to demonstrate the benefits and value of *myUnisa* in the lecturers' everyday teaching activities.

Plan and manage the use of myUnisa *within each department*

Several respondents alluded to the need for there to be a more managed approach to the use of *myUnisa* within each department. This statement is supported by comments such as "allocate time and manage it" and "to at least visit *myUnisa* once a week and interact with the learners".

Highlight the benefits of myUnisa *for lecturers*

Some of the respondents suggested that the benefits of *myUnisa* be pointed out to lecturers in order to get their support in using the system. Examples of these statements include: "use it as a quick and easy communication tool to inform students about things" and "use *myUnisa* for spreading of workload".

Question 5: What should the CoD do about the other learning technologies identified by lecturers (other than the LMS)?

This question also solicited a number of different replies as outlined below:

Other learning technologies need to be researched further

Most of the respondents suggested that further research should be undertaken into the suitability of different learning technologies to support lecturers' teaching activities and to determine whether these technologies could not be built into *myUnisa*. One respondent commented that "they should investigate all technologies and see which will be viable to use".

Encourage their use and adopt if found useful

Several respondents recommended that "the CoD should encourage lecturers to use what works for their students," while other respondents commented as follows: "encourage lecturers to experiment with learning technologies", "make other technologies available and encourage the use of them" and "encourage lecturers to use most of the other technologies".

Incorporate other technologies with myUnisa

One of the respondents suggested that "the CoD should incorporate the other learning technologies as far as possible with *myUnisa*".

Additional comments

Several additional responses were provided in reply to this question. One respondent recommended that, "all [alternative or additional] technologies should be used for the benefit of learners who may not have access to the Internet". Another respondent commented that, "the development of study material … needs to be done in a manner that integrates these technologies and encourages their use". A last suggestion that was made is that, "the reach potential of all different technologies [should be] evaluated in terms of their maximum potential learning ROI".

Discussion

The above-mentioned findings provide some direction for each CoD to follow in order to increase the use of *myUnisa* within their respective departments. To begin with, the findings associated with Question 1 highlight the convergence of the views of lecturers and CoDs supporting the adoption of *myUnisa* as the learning technology of choice within departments. The findings associated with Question 2 also support the initial assertion made about the lack of adoption of *myUnisa* amongst lecturers within the various departments – other CoDs have had the same experience. When brought together, these findings also support the view that a "disconnect" exists between what lecturers believe is an important learning technology and their day-to-day practices (reflected in the relatively low usage of *myUnisa* amongst lecturers).

Increasing the use of* myUnisa *amongst lecturers

The findings associated with Questions 3 and 4 provide insight that enables one to make certain proposals that can be used to direct the efforts of CoDs to increase lecturers' use of *myUnisa*. These proposals are highlighted below. To begin with, it would seem that the reason for the low use of *myUnisa* by lecturers can be ascribed to the lack of exposure, training and time.

As far as exposure is concerned, if lecturers are not using *myUnisa*, then their exposure to the technology and its benefits will be limited as a consequence. In order to increase *myUnisa* usage, the university has already issued an instruction to the effect that all lecturers should meet minimum usage levels for the year. As a result, *myUnisa* usage is increasingly being incorporated by CoDs as a measurable target into each lecturer's performance agreement. It would seem that this approach has had some impact as usage by lecturers of *myUnisa* in the first three months of 2010 has matched lecturer usage of the system for the whole of 2009, according to *myUnisa's* internal usage tracking facility. But CoDs can also have some influence in this regard. They can compel lecturers to use *myUnisa* by making usage targets part of each lecturer's performance agreement. They can also encourage use by providing training, arranging mentors, and promoting the benefits of *myUnisa*. These alternatives are discussed below.

One of the ways of increasing exposure and usage is through training. It is argued that further training is a key component in increasing the usage of *myUnisa* by lecturers. Some lecturers argue that they cannot use *myUnisa* because they do not know how. The obvious solution is to encourage or even compel lecturers to do *myUnisa* training. This training should also be structured in such a way that it takes the participant through several levels of use (from beginner to more advanced user). This training can be scheduled over a longer period of time to ensure that the lecturer receives regular training during the course of the year. It might be worthwhile also to make the training a requirement of the lecturer's performance agreement to ensure that the impact of such training interventions is measured.

Lack of time is another real problem. Lecturers are facing increased pressure in the form of greater teaching and research demands, as well as an ever-increasing administrative workload. Using *myUnisa* more will require additional time and this is perhaps one of the lecturers' major concerns with "becoming involved". Anecdotal evidence from lecturers who are "champions" of *myUnisa* is that it is time consuming; time spent on *myUnisa* translates into lost opportunities elsewhere such as less time to do research. To address this situation, it is proposed that *myUnisa* involvement be made a key performance area. Doing so will enable lecturers to plan for their

involvement in *myUnisa* by agreeing to sacrifice other duties in order to spend more time on *myUnisa*.

Fear of technology is another problem that some lecturers face. There are lecturers still who struggle to work with everyday programs such as *MS Word*, *PowerPoint* and *Internet Explorer*. Getting these lecturers to interact with an online LMS, such as *myUnisa*, is thus a major obstacle. It is proposed that these lecturers will need training, exposure, mentoring and some persuasion in order to use *myUnisa*. These lecturers will also need to be managed more carefully.

There will also be some lecturers who see no value in *myUnisa*. They will argue that the way they have been teaching over the past number of years is adequate and requires no change. They will inevitably identify problems with *myUnisa*, as well as reasons why one should not use *myUnisa*. Changing the views of these types of lecturers can be achieved either by compelling them to use *myUnisa* or encouraging them to use *myUnisa*. In this last-mentioned regard it might be worthwhile highlighting the benefits of the facility and sharing success stories with the lecturer concerned.

The respondents also suggested several additional ways in which *myUnisa* use could be increased. Amongst others, it was recommended that a *myUnisa* "champion" be identified within a department. It would be this individual's task to promote *myUnisa* amongst colleagues, sharing benefits and success stories with them, as well as providing them with hints and tips to improve usage.

Besides the *myUnisa* "champion", the respondents recommended that lecturers – especially the more technology-illiterate lecturers – be mentored in their use of *myUnisa*. The more experienced *myUnisa* users in the department could be asked to assist in mentoring one or more of their colleagues. This would require a bit more time and effort on their part, especially in the beginning, but over time this will fall away.

Respondents also suggested focusing on the benefits of the system. If lecturers begin to realise what the system can do for them, they may be more willing to adopt it. Highlighting *myUnisa*'s benefits and success stories should be one of the primary tasks of the *myUnisa* champion as well as of the mentors within the department.

Finally, the respondents highlighted the importance of planning and managing *myUnisa* usage, placing this responsibility on the shoulders of the CoD. This management responsibility would focus on negotiating *myUnisa* usage performance targets per lecturer and ensuring that these targets are met, ensuring that lecturers are given the time for and actually attend *myUnisa* training, overseeing the integration of *myUnisa* tools with the department's study materials and promoting *myUnisa* usage amongst lecturers.

Figure 1 below provides a framework that CoDs can use to increase the use of *myUnisa* within their respective departments. This framework highlights five areas of focus discussed above, namely training, exposure, mentoring, promotion and persuasion. It highlights the role of the champion and the need for management. What more it suggests is that the use of *myUnisa* can be increased either through the efforts of the department (push) or by encouraging greater use of *myUnisa* by students (pull). If there is greater involvement of students in *myUnisa*, this may compel lecturers also to be more involved.

Other learning technologies

As far as other learning technologies are concerned, the overwhelming response was that such alternative technologies should first be fully researched and evaluated before

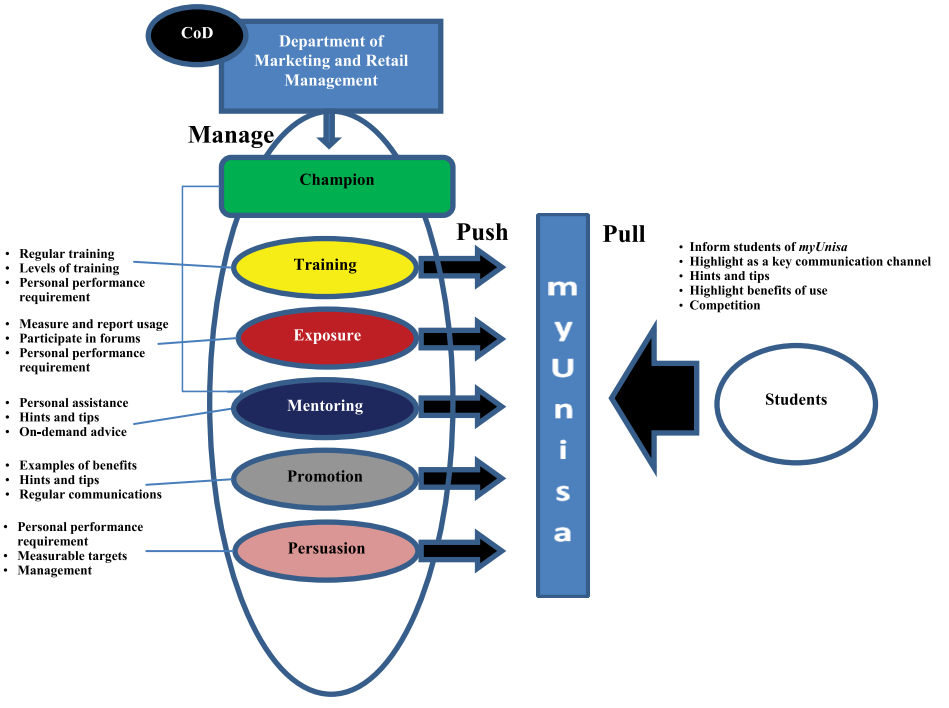

Figure 1. Proposed framework to facilitate increased use of *myUnisa*.

they are adopted by the department. In addition, it was suggested that the CoD should encourage lecturers to experiment with alternative technologies, and where such technologies are found to be useful, they can then be considered for adoption by the department.

Conclusion

The lecturers interviewed overwhelmingly supported the use of an LMS as their preferred technology of choice. This is a very interesting finding. Unisa has an excellent bespoke LMS in place, namely *myUnisa*. It is a powerful online tool that is available to all registered students. The interesting fact is that most lecturers within the DMRM do not use *myUnisa*. The findings thus suggest that although lecturers are reluctant, unwilling or unable to use an LMS, they do appear to recognise the value that it brings to learning and as a means of supporting the student.

The findings might also mean that *myUnisa* is all that lecturers are familiar with (within their academic sphere) and their selection of an LMS as the preferred learning technology of choice is based on this familiarity. It could also mean that because the university has been pressing for the use of the LMS amongst academics lecturers feel obliged to recommend its use.

It is also interesting to note that Web-based learning also appeared in the list of top five technology choices. Bearing in mind that the *myUnisa* LMS is essentially a Web-based learning system, there is arguably a serious overlap between these two choices.

This supports the view that lecturers consider the web (or the idea of "online learning" as embodied in an LMS) as the route to go.

Another suggestion might be that lecturers feel that students are facing a medium overload (i.e. the use of too many technology channels), which might impact on the effectiveness of many of these technologies, especially if they are used separately. An LMS, on the other hand, has the potential to incorporate many if not most of these technologies (such as webinars, blogs, email, SMS, discussion forums, etc.) into a single interface or online environment and could therefore serve as "home" or "base" for many of the other suggested technologies. This would make it a "one-stop shop" of choice.

Notes on contributors

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Appendix 1. Proposed technologies

Table A1. Full list of technologies identified by lecturers

	Proposed technologies
1.	SMS/MMS (short messaging service/multimedia messaging service)[a]
2.	Cellular technology (non-SMS) – e.g. wireless application protocol (WAP)/mobile web applications
3.	Personal digital assistants (PDAs – similar to smartphones but without cellular connectivity)
4.	CDs and DVDs
5.	Learning management system (LMS) (e.g. *myUnisa*)
6.	Social networking services (such as *Facebook*, *Twitter*, etc.)
7.	Automated telephone self-help service (e.g. "If you want … then press #1", etc.)
8.	Use of webinars/podcasting (short learning videos that are delivered to students via iPod, smart-/multimedia phones, or online)
9.	*YouTube* (an online video delivery service that can also be viewed on some cell phones)
10.	Internet/WWW (websites used to support module information activities, frequently asked questions (FAQs), simple assessments, multiple-choice questions, etc.)
11.	Satellite and video conferencing (teleconferencing)
12.	Campus radio
13.	National radio
14.	Blogs (by lecturers)
15.	Email (interactive communication between lecturer and student)
16.	Chat or discussion forums (involving student-to-student and lecturer-to-lecturer communications)
17.	Computer simulation and educational gaming (online and offline – CD/DVD-based)
18.	Departmental software solutions (bespoke programs to assist lecturers in helping students)
19.	Interactive TV (e.g. DStv)
20.	Online teaching (online discussion classes)
21.	Keyword search tools
22.	e-newsletter/e-magazines (run by lecturers for students)
23.	Electronic provision of study materials (e.g. on flash drives)
24.	Automated assessment
25.	Webcams to support teaching and communications

Note: [a]Short messaging service is sometimes called simple messaging service.

Appendix 2. Opportunities and threats of the proposed technologies

Table A2. List of top five technologies and the associated challenges identified by lecturers

Overall rank	Proposed technology	Challenges (opportunities and threats) identified
1	Learning management system	• Costly to develop from a university's perspective • Time-consuming to maintain from a lecturer's perspective (requires a lot of involvement) • Incorporates a number of sub-technologies (e.g. blogs, wikis, email, SMS, discussion forum, etc.) • Useful to keep occasional and/or intensive contact with students • Unisa already has *myUnisa* in place • One-stop learning environment for students • Creates expectations on the part of students that may be difficult to meet • LMS not suitable for all learning tasks • If the LMS is badly designed, this could be a stumbling block • Available 24/7 for the student • Central point for communicating quickly with students • Not all students have access to LMS • Can be self-help or interactive • Facilitates collaborative learning (student–lecturer and student–student) • An efficient system • It can be used to support learning or as a main source of learning • Saves time – it is efficient • Learning can be managed
2	CD/DVD technologies	• Can solve the printing problems being experienced by Unisa • Not real-time interactive • Time-consuming and costly to create • Time-consuming to send out • Relies on physical distribution • Pirating may be a problem • Production has to be really good for the DVD to look good • Outdated technology • Student still requires a computer (not available to all students) • Make DVDs available to tutors to use (incorporating study material) • Can incorporate extensive audio visual material and a much wider range of information than other media • Large storage capacity – good for sending bulk materials • Flash drives are perhaps a better option (physically smaller with bigger storage capacity) • Can be used for subject-specific support material (i.e. an add-on)

Table A2. (Continued).

Overall rank	Proposed technology	Challenges (opportunities and threats) identified
3	Email	• Students do not access their emails regularly • Set fixed days to send regular emails on • Creates an overload for the lecturer • Students expect immediate replies • Limited to the amount of data that can be sent • Not all students have email • A powerful communication tool
4	Web-based learning sites	• Speedy access to study materials • Not all students have access to the Internet/Web – netbooks? • Lack of broadband in SA • Lack of knowledge amongst lecturers • Will need to be used together with other technologies (blended learning) • Unisa needs to investigate ways of enabling students to get access to computers and the Internet
5	Automated telephone self-help services	• Can be used as a self-help service • Channels students to appropriate person, in order to help him/her • Can take a lot of work off the lecturers' shoulders • Should be provided by third-party department in the broader Unisa context (too many options are likely to be a problem though) • Staff must be properly trained to handle queries • System must be equipped to handle volumes • It would help to reallocate administrative burden to appropriate person • Could use a fax-on-demand system to deliver low-volume tutorial material, etc.

Appendix 3. Main study questionnaire

Questionnaire: Addressing the learning technology conundrum

Introduction

The Department of Marketing and Retail Management (DMRM) recently undertook a survey of lecturers within the DMRM to ascertain their views as to which learning technologies they felt were the most appropriate for the department to use. The abstract below outlines what the research entailed.

Abstract

A challenge faced by the Chair of the Department of Marketing and Retail Management, an academic department within the University of South Africa, is to adopt and manage appropriate learning technologies to support the department's learning offerings and students. The conundrum that arises, and which this study attempts to answer, is which learning technologies are the most appropriate for the department to use. Although the university actively promotes certain learning technologies, these are not always adopted uniformly across departments. Furthermore, while some lecturers are averse to using any form of technology in their teaching activities, others may favour one learning technology over another or may even adopt non-official learning technologies rather than those supported by the university. As the lecturer is key to the delivery of learning within the department as well as to ensuring the success of any learning technology adopted by the department, it makes sense to understand the views of lecturers as to which learning technologies they see as being the most appropriate to use. Their views were obtained using the Delphi method and analysed using Chi-square analysis. The findings strongly highlighted a *learning management system* (e.g. *myUnisa*) as the most appropriate technology to use from the view point of lecturers.

Questions

1. Would you agree that an LMS (such as *myUnisa*) is the most appropriate technology to use to support the teaching activities in your department?
2. Are the lecturing staff in your department currently using *myUnisa* in their teaching activities?

   Extensively [ ] To a limited extent [ ] Hardly or not at all [ ]
3. If you believe that your colleagues in your department are using *myUnisa* either to a limited extent or hardly at all, why do you think this is?

   _____
   _____
   _____
4. How would you encourage the use of *myUnisa* within your department?

   _____
   _____
   _____
5. What should CoDs do about the other learning technologies identified by lecturers (other than the LMS – see Tables A1 and A2)?

   _____
   _____
   _____

Respondents were provided with copies of the tables highlighting both the full list of technologies identified by lecturers, as well as the list of the top five technologies identified by lecturers together with the respective challenges (these two tables are highlighted in this article as Appendix 1 and Appendix 2, respectively.