IJEDE International Journal of E-Learning & Distance Education
La Revue internationale de l'apprentissage en ligne et de l'enseignement à distance

ISSN: 2292-8588 **Volume 38, No. 2, 2024**

Lecturers' Perceptions of a Learning Management System Migration at an Open Distance and e-Learning Institution

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Abstract: Learning management systems (LMSs) are common in higher education institutions and form the backbone of open distance and e-learning (ODeL) institutions. Migrating to any new form of technology is known to be a challenging endeavour and LMSs are no exception. This study uses the Unified Theory of Acceptance and Use of Technology (UTAUT) model to analyse open-ended responses to a questionnaire sent to lecturers at an ODeL institution during the migration from one LMS to another. In the study, 83 responses are analysed, and six major themes are discussed. The results indicate that timely and specific support is critical in a technological migration process, and communication around the migration is vital to the morale of lecturers involved. We noted many instances of anxiety due to increased workload factors. We recommend that institutions migrating from one LMS to another conduct pilot studies and focus on clear and effective communication while not underestimating the resources needed for successful migration processes.

Keywords: Learning management systems, LMS, migration, Unified Theory of Acceptance and Use of Technology, UTAUT, open distance institutions

https://doi.org/10.55667/ijede.2024.v38.i2.1300

Perceptions des enseignants concernant la migration d'un système de gestion de l'apprentissage dans un établissement de formation ouverte et à distance

Résumé : Les systèmes de gestion de l'apprentissage (LMS) sont courants dans les établissements d'enseignement supérieur et constituent l'épine dorsale des établissements de formation ouverte et à distance (FOAD). La migration vers toute nouvelle forme de technologie est connue pour être une entreprise difficile et les LMS ne font pas exception à la règle. Cette étude utilise le modèle de la théorie unifiée de l'acceptation et de l'utilisation des technologies (UTAUT) pour analyser les réponses ouvertes à un questionnaire envoyé aux enseignants d'un établissement de FOAD pendant la migration d'un LMS à un autre. L'étude analyse 83 réponses et aborde six thèmes principaux. Les résultats indiquent qu'un soutien spécifique et opportun est essentiel dans un processus de migration technologique, et que la communication autour de la migration est vitale pour le moral des enseignants concernés. Nous avons relevé de nombreux cas d'anxiété dus à l'augmentation de la charge de travail. Nous recommandons aux institutions qui migrent d'un LMS à un autre de mener des études pilotes et de se concentrer sur une communication claire et efficace tout en ne sous-estimant pas les ressources nécessaires à la réussite des processus de migration.

Mots-clés *:* Systèmes de gestion de l'apprentissage, LMS, migration, théorie unifiée de l'acceptation et de l'utilisation de la technologie, UTAUT, établissements de formation ouverte et à distance

Introduction

Lecturers need to acknowledge and embrace that adapting to new working tools is a necessary competence in the modern era. In higher education specifically, using a learning management system (LMS) is a common occurrence. From time to time, and for a variety of reasons, higher education institutions change their LMS. These changes leave academics with the task of learning to migrate to the new LMS. For the purposes of this study, we accept the Turnbull et al. (2019, p. 1) definition of LMSs as "web-based software platforms that provide an interactive online learning environment and automate the administration, organization, delivery, and reporting of educational content and learner outcomes." For institutions that rely on the LMS only as a repository or as a way to manage administrative tasks, the migration may not be too disruptive. However, for open, distance, and e-learning (ODeL) institutions such as the one in this study, the LMS is part of regular teaching and learning, and is used daily to facilitate distance learning (Roslinawati & Utama, 2021). In this case, if the migration to a new LMS were to be unsuccessful or challenging, it would have more grave consequences for academics facilitating daily teaching via the LMS.

LMS migration is known to be challenging for lecturers (Bove & Conklin, 2020; Jones, 2015). The most common problems relate to the time needed to learn how to use the LMS (Ryan et al., 2012) and the type of support needed to effectively migrate (Chokwe, 2022). The change process is likely to affect the entire organisation (Powers & Moore, 2022). In many cases, research has focused

on face-to-face institutions or hybrid/blended institutions. The context of this study is a South African ODeL institution where lecturers who had been using an LMS for all their teaching were required to move to a completely new LMS when the institution contracted to a new system. In this context, the LMS is essential in facilitating and supporting administration of courses, distribution of material, and collaboration within the courses (Varnell, 2016).

Technology Acceptance Models

LMS migration is usually viewed theoretically from a lens of technology acceptance. Examples include the Technology Acceptance Model or TAM (Davis, 1989); the extended TAM, called TAM 2 (Venkatesh & Davis, 2000); and TAM 3 (Venkatesh & Bala, 2008). The Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT 2 models further expand on factors that influence behavioural intention and use of technology. (See Chang, 2012 and Alghatrifi & Khalid, 2019, for comparisons.) The TAM proposed that technology acceptance is founded on two main principles: perceived usefulness and perceived ease of use. TAM 2 extended the first model and included external social factors that affect technology acceptance. The UTAUT model includes social influence and facilitating conditions (FCs) as shown in Figure 1.

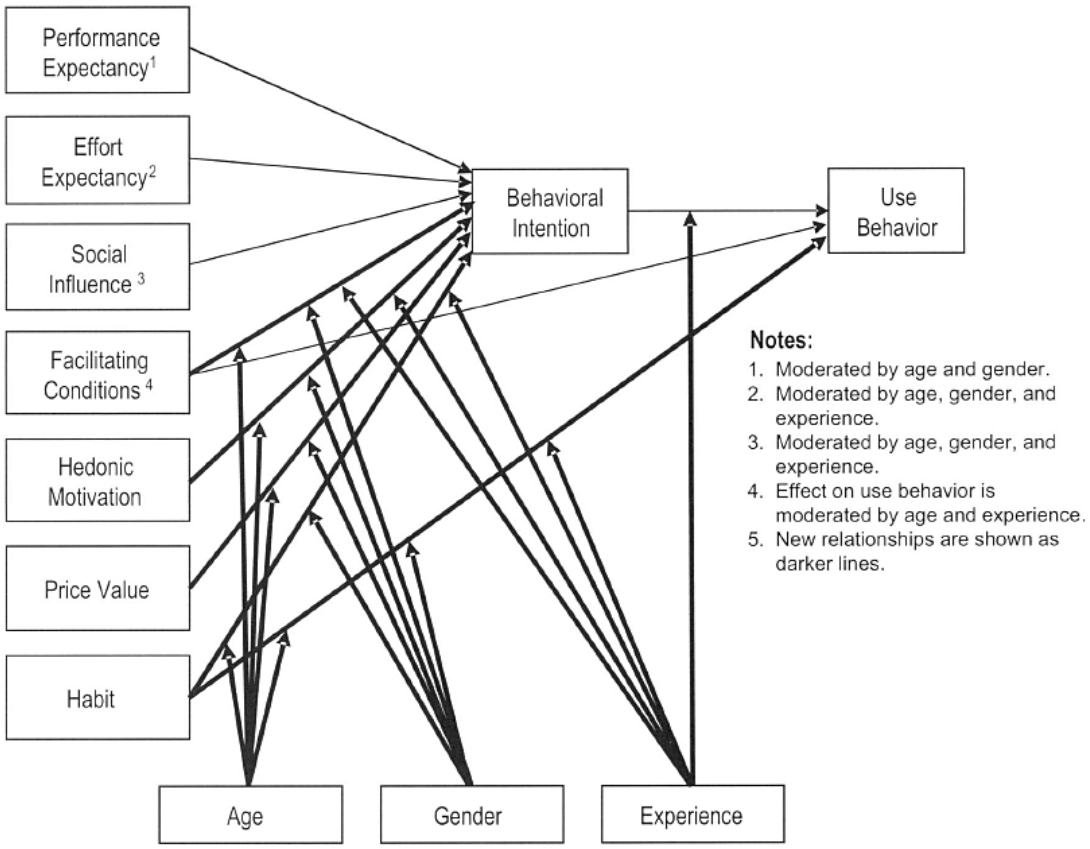

Figure 1: *UTAUT Model (Venkatesh et al., 2003)*
Image description available.

Facilitating Conditions in the UTUAT Model

Our study focuses on the FCs in the UTUAT model that enable acceptance of new technology. FCs refer to the degree to which an individual perceives that the necessary resources and support are available to use the technology effectively. FCs are further characterized by the technical infrastructure available, adequate training and support, and access to information and organizational support when using new technology. Moreover, factors such as age, gender, and experiences also play a role in technology acceptance.

Venkatesh et al. (2003) determined that these conditions have an immediate and substantial influence over technological usage in universities. Khan et al. (2021) reiterated that a lack of FCs were the key reason LMSs are not widely adopted. In addition, FCs emerged as an important aspect of LMS sustainability during COVID-19 at Nigerian institutions (Cavus et al., 2021). Moonsamy and Govender (2018) and Chokwe (2022) had similar findings at South African institutions, where FCs seemed to have strong association with effort expectancy and LMS usage. However, we wanted to consider these conditions from a more qualitative perspective.

Tarus et al. (2015) indicated that adoption of an LMS is dependent on appropriate digital skills possessed by lecturers. Another study indicated that digital skills are an essential influence on LMS adoption (Wong et al., 2014). Additionally, Alrawashdeh et al. (2012) noted system enjoyment, ease of use, support, and interactivity as substantial contributors to the adoption of the system. A related study by Maina and Nzuki (2015) discovered that institutional policies and training have a great influence on the use of an LMS.

Further work on the UTAUT model by Venkatesh and colleagues resulted in considerable focus on affective areas such as motivation and anxiety in what is called the UTAUT 2 model (Venkatesh et al., 2012). Given that the lecturers in this study would be using the new LMS for the first time, a certain level of anxiety would be expected. In the UTAUT 2 model, anxiety is discussed as *technological anxiety,* and it is proposed that anxiety can influence the FCs as

well as the relationship between the other elements of the UTAUT models. However, the issue is more complex, as shown by the various forms of anxiety that affect technology adoption set out by Gunasinghe and Nanayakkara (2021, p. 287). For example, Gunasinghe and Nanayakkara attempted to understand the effect of task anxiety, which they define as a "temporary uneasy feeling or worry of an individual having to deal with computers or systems." They added that with technology adoption, the virtual learning environment is a "complicated software platform, that needs multiple skills for effective interaction." Migration that takes place over a longer period of time may be managed more easily. Studies indicate that having early users as part of the developmental implementation allows issues to surface and be corrected more easily (Cottam, 2021) than when many users implement the system at once.

A Reflective View

Our study uses the FCs aspect of the UTAUT model to analyse lecturer's experiences of migrating from one LMS to another, while also considering the affective factors. While many studies on UTAUT or UTAUT 2 and an LMS provide a predictive view, our study exposes a reflective view of using the model. Our study uses UTAUT to reflect on the migration itself, while the lecturers reflected on their migration experiences in response to our questions. Although many studies have focused on technology acceptance of university students, not enough is known about technology acceptance of lecturers at higher education institutions (Rucker & Downey, 2016; Garone et al., 2019; Varnell, 2016).

Furthermore, the context of this study is the global South—where far less is known about LMS migration. In spite of the fact that the failure rate of organizational technological changes is estimated to be 70% (Guerra-Lopez & El Dallal, 2021), the successful adoption of an LMS is critical at ODeL institutions.

Background on Institution Involved

The institution involved in this study was migrating from one LMS to another at the beginning of 2022. Both the old and the new LMS were open source. All lecturers and courses across all faculties were being migrated at once. Training for the new LMS started in the second half of 2021. All training and support were virtual due to the lingering pandemic. The institution had moved to a fully online mode of teaching and learning during the COVID-19 pandemic. From mid-2020 on, lecturers were using the old LMS to facilitate this online mode and the pandemic was showing no signs of abating.

Research Question

Our research question is therefore:

How did lecturers at an ODeL institution perceive the migration to a new LMS?

Methodology

Questionnaire

We employed an exploratory case study methodology using an online survey. A questionnaire based on the lecturers' perceptions of the migration from a previous LMS to a new LMS was designed. The questions were developed around the FC dimensions of the UTAUT model. The questionnaire was sent to all full-time lecturers at the institution who had been employed for at least three years. This meant the lecturers in the study had been using the previous LMS for at least three years. Lecturers participated on a voluntary basis and were not offered any incentive for participation other than the opportunity to share their experiences.

This study focuses on the final, non-compulsory question of the survey. This last question was open-ended, asking for *any* comments on the migration and the migration process. Lecturers had access to the questionnaire for two weeks. The questionnaire was administered after the lecturers had used the new LMS for one semester, thus it provided data on the early implementation phase (Garone et al., 2019). One hundred and twenty five responses were received for the questionnaire, with 83 lecturers voluntarily answering the last open-ended question. This means that 66% of lecturers provided written comment(s). This study focuses on the written responses received from 83 lecturers who opted to answer the final open-ended question.

Background on Migration Process

Let us provide some contextual details about the migration process. Lecturers were informed early in 2021 that the migration process for all courses across all faculties would take place for full implementation in 2022. An experimental site was created at the end of May of 2021 where lecturers could get to know the new LMS and try its tools and features. However, the look-and-feel of this experimental site was different from the one used later in the year. Formal training on using the new LMS was started in the latter part of 2021. All courses were migrated by February 2022.

Data Coding

We coded the data using UTAUT's FCs, as well as the affective factors that emanated from the data. We set out with a coding protocol that included training, support, infrastructure, resources, and access to information. We reported on these FCs. Each member of the study team coded individually. Then we compared our coding and adjusted as we reached consensus. After the initial coding took place, secondary coding took place, where we used open coding to allow other emergent themes to develop. When working through the data, we also noticed an evolving theme on anxiety and fear. This allowed us to set out new insights into the data and relationships between the FCs.

Limitations

We note our limitations as methodological. The open-ended question was not a compulsory question in the survey, and it simply asked if participants had *anything* they wanted to say about the migration process. It is, therefore, not possible to state that the perceptions we present are the perceptions of all lecturers at the institution. However, if respondents felt compelled by a particular issue, we assume they would have noted that in their response to the open-ended question. The responses were predominantly negative, although we also include positive responses. Voluntary responses to the open-ended, general question are usually prompted by a positive or negative orientation, not a neutral one.

Findings

We report our findings under the following six major themes related to UTAUT: training, support, resources, infrastructure, access to information, and emotional responses. We briefly summarise the key findings in Table 1 below.

Table 1: Summary of Key Themes

Training	Support	Resources	Infrastructure	Access to Information	Emotional Responses
Industrialized, one-size-fits-all training is unsuitable. A variety of flexible training formats are necessary.	Difficult to access certain support systems. Not tailored to individual needs. Support to be easily available.	Human resources needed for migration must not be under-estimated.	Testing system stability and system integration is important.	Lack of communication regarding changes led to high levels of frustration. Continual reminders are needed as to the rationale for the new LMS.	Having to redo work due to system failure is emotionally draining.

Theme 1: Training

Training included the official courses, workshops, and interactions planned by the institution and rolled out to lecturers before and during the migration period. Overall, the training was deemed insufficient or unsuitable for the task lecturers were given. The majority of comments are reflected by the selection provided below. Lecturers specifically mentioned the robustness of the training, as well as the suitability of the facilitators, for meeting their specific needs.

The following statements reflect these sentiments:

> *. . . the training was so patchy and superficial that we had to figure out by ourselves how to construct module pages.*

> *. . . trainers did not understand the program, nor did they understand the requirements of the academics.*

> *I've attended a number of training sessions and found that there was some contradictory information between sessions, which was really confusing when you are trying to master a brand-new system.*

Powers and Moore (2022) note that handing over implementation of an LMS to information technology departments can cause problems since they are not the users of the system. Similarly, Lawler (2011) indicated that a technocratic approach to LMS migration was less effective than a user approach. Lecturers at the institution in this study felt that they were trained in a technocratic, one-size-fits-all manner by LMS trainers.

The institution used two training groups; while one group of trainers were part of the existing professional development unit, the other group was outsourced to consultants who were brought in as specialists in the new LMS. This may have given rise to the confusion in the training sessions. The trainers from within the institution were often able to mediate misconceptions by relating the new LMS to the functionality of the previous one. This may be an example of the social dimension of UTAUT. Emanating from Lawler's (2011, p. 1112) study, trusting people to adjust to a new LMS was more effective than "managerialist, technocratic approaches".

Lecturers also mentioned that a user manual in the early phases of implementation would have been useful. Since they had to be customized for the institution and undergo quality assurance measures, the manuals that lecturers eventually received took much longer to be produced:

The trainings provided don't address the real issues experienced and are too basic. We need user manuals to guide lecturers on what to do.

Some lecturers mentioned the long sessions for the training, while also indicating that colleagues provided meaningful assistance, which is another indicator of the social dimension of UTAUT:

The main problem was that the training was overwhelming. Two to three hours for each tool and all the choices one has (far too many choices and impossible to remember every choice for the next semester) was very stressful. I believe the training was done in the wrong way and 'freaked people out' . . . In the end, I stopped attending training. After 30 hours of training, I learned more in a 30-minute one-on-one session with a colleague who guided me through the basics of how to set up my site.

Another lecturer echoed concerns about long training sessions:

I think some people might attend more if the sessions are shorter.

One lecturer indicated a willingness to learn how to use the LMS by looking for information on the internet (Roslinawati & Utama, 2021):

It is much easier and time effective to Google or to watch YouTube videos on the new LMS than to attend the training sessions.

Another lecturer felt their concerns were being ignored by the management:

The university managed the migration very poorly. We repeatedly indicated that the training was rushed and insufficient, but our pleas fall on deaf ears.

Ryan et al. (2012) and Guerra-Lopez and El Dallal (2021) suggested a variety of multi-faceted training should be provided for lecturers migrating to a new LMS. Khan et al. (2021) concluded in a quantitative study on LMS migration that lack of training is the key reason an LMS is not adopted. In this study, the training provided was generic, one-size-fits-all for lecturers. Training followed up by user guides is a possible way to mediate the migration challenges experienced by these lecturers. Due to the lingering pandemic, online training was the preferred approach, but this limited the valuable, informal learning that may have taken place in face-to-face sessions or hallways (Conklin & Bove, 2021).

Theme 2: Support

Moonsamy and Govender (2018, p. 3080) pointed out that "the effort required to use the [LMS] system is strongly influenced by the conditions that prevail, such as support from management." Academics in this study said that the support they received from various departments in the institution did not provide support where they specifically needed it:

> *There is absolutely NO support for lecturers, you ask for help and two months later get a response, sorry for the delay, we do not understand the problem. You respond, two months later you get the same response. What I did, I figured out with Google, the rest I had to wing and change things around so that I could just get my work done. ALL my time is spent on the new LMS!*

The new LMS was hosted by an outside contracted vendor, providing all the necessary support to the institution:

> *We also have difficulty getting answers sometimes, and it was (and sometimes still is) extremely frustrating when we ask questions and get a response that that issue is still being worked on, or this or that committee is still deciding on the issue.*
>
> *Lecturers had to troubleshoot answers to continuous problems together with students, were often as much in the dark as our students, or hardly a few seconds ahead of them [students] in mastering the new LMS.*
>
> *While the inhouse team was proficient in answering questions, they could not handle more complicated issues that was not straightforward AND they were overwhelmed.*

The comments reflect support that was not timely, nor specific to the needs of the lecturers. The comments also reflect that the support team was not always able to meet the needs of the entire institution during the early migration period.

One lecturer felt that implementing too many changes at once is not supportive to academics learning a new LMS:

> *Too many changes that require training are simultaneously thrown at academics and this causes major stress and overload.*

When DeLone and McLean (2003) revised their information systems success framework, they categorised service quality as a factor in information system implementation success. Service quality as they defined it includes

assurance, empathy, and responsiveness. From the respondents' perceptions of the support they received, this service quality seemed to be lacking. It is important to note, however, that the open-ended question was not a compulsory question in the survey. Therefore, only respondents who specifically wanted to make comments would have answered it, and this may not have captured all the perceptions. In their scoping analysis of the literature on LMS migration, Guerra-Lopez and El Dallal (2021) included 24/7 access to robust support as an important element of LMS migration.

Theme 3: Resources

Lecturers who struggled with migrating to the new LMS cited resources as the possible cause of challenges they experienced. They specifically mentioned human capacity at the institution, as well as the need for piloting and a manual that they could refer to in the early days of implementation:

> *. . . why do you only have SIX people supporting the entire University? Who's being stingy with the resources?!*

Some lecturers indicated that the new LMS should have been piloted before it was fully implemented. This is supported by the Guerra-Lopez and El Dallal (2021) study, in which they found that stakeholders should be involved early in the change process to gain buy-in. Roslinawati and Utama (2021) reminded us that *people-readiness* is critical in distance education. Powers and Moore (2022) also indicated that including stakeholders in the development process can mitigate the alignment problems that may arise when training for an

LMS is offered by an information technology department. The following statements reflect these sentiments:

> *I am of the view that migrating to the new LMS was too rushed without any pilot testing on its effectiveness and efficiency.*
>
> *I fail to understand why the new LMS was not piloted with one or two modules first.*
>
> *We did not understand the vagaries of the system, how it integrates and without a proper trail with big modules.*

This lecturer suggested they needed help getting their sites ready for students:

> *I felt the need for each department to have a new LMS tech ready to help us to make our sites student ready. We are trained to teach, not to struggle with technical stuff.*

The lecturers felt that the institution did not have sufficient resources, including people capable of helping, in place to fully support the migration of the entire institution at once. Cottam (2021, p. 66) reminded us that an LMS migration is "one of the most complex and labor-intensive initiatives that a university might undertake." In their study, Guerra-Lopez and El Dallal (2021) indicated that change agents could assist with LMS migration. In this way, colleagues able to provide the advice and assistance indicated by the participants could have been identified as early adopters. Lawler (2011) cited

early voluntary users of the LMS as part of the successful implementation strategy.

Theme 4: Infrastructure

Lecturers volunteered comments on the infrastructure itself. At times, it is difficult to distinguish between infrastructure and systems. Furthermore, academics may not have always been able to accurately diagnose the challenges they experienced with the initial new LMS integration. The following statements by lecturers point to infrastructure challenges:

> *Then finally, which is the biggest frustration for me, is the stability of the system. Sometimes if I try to save my work, then the database goes down, which means that I lose all the comments and feedback on the assignment and have to restart the marking.*
>
> *24/7 support is needed for the new LMS because of the technical difficulties that arise all the time. The new LMS is good, but the institution lacks the necessary infrastructure to run it properly. The site seems to be down more than it is working.*
>
> *Not everything was ready when we migrated, and it was frustrating to find out some stuff did not work and wait while it got fixed.*
>
> *There are also some issues with the new LMS not "speaking" to the registration system as I get queries where registrations will tell me there is not a mark for a student on the system, yet, from my side, I can see the mark.*

The migration was too quick and there are still problems with downtime and glitches.

Ryan et al. (2012) recommended when migrating to a new LMS, institutions ensure that their servers work all the time and use piloting prior to institution-wide implementation. Our results concur with this. DeLone and McLean (2003) considered system quality, information quality, and service quality to all be part of individual impact; in other words, individual impact encompassed the intention to use the system, using the system, and the satisfaction of the individual user. Cottam (2021, p. 67) suggested that LMS migration be done through agile development cycles, by which users get to use the system early and provide feedback to the migration team. This allows for "small pivots along the migration path," which enables a smoother migration process. Participants commented more about infrastructure than the other themes, so we concur that infrastructure is perhaps more important than the people factor in technology integration (Surry et al., 2005).

Theme 5: Access to Information

There were several comments lamenting poor communication around the migration, its rationale, and progress:

There were constantly surprising changes to the new LMS module sites.

The lack of communication and guidance regarding extensions to assignments needs to be addressed.

Problem when settings are changed without the lecturer's knowledge.

Extremely frustrating when we ask questions and get a response that that issue is still being worked on, or this or that committee is still deciding on the issue.

The implementation was poorly communicated.

The issue lies with the way in which the new LMS has been implemented and the communication on it.

Help[ing] academics cope with the overload of information that they face in this migration process.

While the overwhelming issue is the lack of information and communication, the last comment indicates that too much information was also a problem with the migration process. This was also alluded to in the perceptions about training being too long in some cases, yet specific information the lecturers needed was not easily or quickly available. At times, it seemed that the training staff may have been more successful if they had skills in human interaction and communication, not only high-quality technical skills (Lawler, 2011). Buy-in from the lecturers through early and regular communication could have mitigated some of the challenges. Furthermore, buy-in from trusted colleagues and support from champions may also have been helpful. Notable is the seeming lack of knowledge amongst lecturers about the rationale for the migration. Even though it is commonly understood that a change of this nature is

disruptive, lecturers should be continually reminded of why the change is needed (Conklin & Bove, 2021).

Theme 6: Emotions/Anxiety

One of the findings is that there were numerous responses which we coded as *emotional* or revealing anxiety related to anger and fear. In UTAUT 2, the term *hedonic motivation* refers to the degree to which individuals perceive using a technology as enjoyable or pleasurable. This factor has been demonstrated to be significant in influencing people's decision to adopt and use a particular technology (Brown & Venkatesh 2005). Gunasinghe and Nanayakkara (2021, p. 47) proposed that "emotions such as anxiety is an extremely relevant concept in technology acceptance" since negative emotions, such as worry, can make lecturers physically or mentally withdraw from the uptake of the new technology:

> *I did not have adequate resources such as time. The institution's approach to innovations to bullishly go ahead and learn by trial and effort is frustrating and emotionally draining.*
>
> *I have no words for how much I hate the transition to the new LMS.*
>
> *The migration was such a disaster.*

On closer inspection of the comments that referred to a high level of anxiety or emotion, we found that the response was usually attached to

statements about an increased workload, or specifically having to redo work. This raised the emotional level of the responses as shown in these examples:

> *This delays work, creates frustration, and results in additional time spent to redo work.*
>
> *Where a lecturer is expected to carry out all academic tasks that was previously with other sister portfolios, so the new system was overwhelming and adding to the anxiety!!*

One lecturer quantified the extra workload:

> *Too little time was available to reload all the module lessons on the new LMS, and I had to work more than 18 hours a day for at least two months to get everything ready on 1 February.*
>
> *I am grateful for the new skills, but unhappy about the process of acquiring these skills. All my other KPAs [key performance areas in the performance agreement] were affected by this move.*

The findings in Moonsamy and Govender (2018, p. 3081) clearly indicated that "huge workloads emerged as not having sufficient time to be innovative." Hannon et al. (2011) highlighted short migration times as obstacles to migration. Varnell (2016) also highlighted the added workload burden of distance education coupled with LMS migration. The Jones (2015) study on LMS migration found that the added workload was multi-faceted with lecturers requiring technical, design, and system support. The Khan et al. (2021) study reiterated that a lack of time resulted in low LMS adoption.

There were a few comments that were positive about the migration, for example:

> *It was painful, but possibly the best decision ever to migrate.*
>
> *I find the training really helpful, and I try to attend as many sessions as possible. With the migration to the new LMS, the length of the session added more pressure as our diaries were already full, but I understand that it was needed.*
>
> *It is not an easy process, but it is possible we just need time.*
>
> *The functionality of the new LMS is good, and apart from it not being available at times, I find it adequate and enjoy working with it.*
>
> *When the system is working (no down-time), the new LMS is very effective and enjoyable.*
>
> *Like any new system, it takes time to learn it and use it in such a way to benefit both the lecturer and the students.*
>
> *There is little doubt that a functional new LMS can offer us better teaching opportunities and as such we should support the use of the platform.*

Technology acceptance and emotional responses are closely linked. Emotional responses play a role in shaping an individual's attitude towards technology, which in turn determines their willingness to adopt and use it. If someone has a positive emotional response to using a particular technology, they are more likely to accept it and continue to use it. We need to also

consider that there are people who do not like change, and such a person is likely to view any disruption as unnecessary (Ryan et al., 2012). The highly charged sentiments may be because of individual personalities. We do concur with Lawler (2011, p. 1117) that LMS change is more effective when the regular users of the LMS (i.e., the lecturers) have "ownership over that process" and are "meaningfully engaged in the process before and during implementation."

Conclusion

Change and change management are still at the heart of dealing with evolving and new technologies. As systems continue to evolve, lecturers and administrators will need to adapt, change, and respond to change-needs as they surface (Bove & Conklin, 2020). Implementing institution-wide changes poses a significant challenge for leaders at higher education institutions (Guerra-Lopez & El Dallal, 2021). This article set out to document the perceptions of lecturers when migrating to a new LMS. In the open-ended question asking for any further information they wanted to share about the migration, most lecturers cited challenges and struggles. The FCs of the UTUAT framework were articulated by our participants as having direct consequences for LMS migration. Training, support, infrastructure, access to information, and adequate resources were all found to be vital to LMS migration.

Many comments referred to the poor implementation and management of the migration to the new LMS, including hasty and haphazard deployment,

insufficient training, and a lack of consultation with the lecturers. It must be noted that the old and new LMSs are not the focus of the study; instead, we focused on the migration process. Hence, neither the old nor new LMS are named in this study. Any LMS will have both positive and negative aspects. We focused on the early migration process and this in no way coincides with the success of the final migration nor the full implementation of the LMS. Because this study took place during the early migration, the resistance to change phenomenon must also be considered.

Our participants also cited issues with the stability, accessibility, and functionality of the systems during the migration. Our results are aligned with the Moonsamy and Govender (2018, p. 3070) study indicating that "having the infrastructure in place to influence behavioural intention and usage of the system" is important. Noteworthy were mentions of the communication issues, including a lack of timely and clear communication about system downtime and changes to the system. In addition, administrators should not underestimate the complexity of LMS migration (Jones, 2015). We support the Guerra-Lopez and El Dallal (2021) insight that the management of technological change in higher education institutions requires more research. Our article aimed to add to this body of knowledge.

A summary of recommendations would include a need for a variety of training formats rather than one general training opportunity. Emphasis should be made on the availability of human and infrastructure resources during

migration. Another important factor is to ensure system stability and integration through testing and pilot implementation. Effective and continuous communication with lecturers during migration is needed, including sharing the rationale for the migration, as this would alleviate frustration during the migration process.

The anxiety displayed in some of the responses is worrying, since this is likely to harbour early negative perceptions about the LMS. We plead with institutions changing any major form of technology to ensure that training, early and constant communication, and infrastructure stability are prioritized during the migration process.

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Image Descriptions

Figure 1 image description: A diagram shows how the following factors filter through behavioral intention moderated by experience to determine use behavior:

- Performance expectancy moderated by age and gender
- Effort expectancy moderated by age, gender, and experience
- Social influence moderated by age, gender, and experience
- Facilitating conditions moderated by age and experience

- Hedonic motivation moderated by age, gender, and experience
- Price value moderated by age and gender
- Habit moderated by age, gender, and experience

Facilitating conditions and habit may determine use behavior without being moderated by experience. Also, facilitating conditions, hedonic motivation, price value, and habit are new relationships.

[Back to Figure 1]