M-LEARNING READINESS OF THE UNIVERSITY OF ZULULAND: A STRUCTURATION THEORY PERSPECTIVE

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Abstract

Whilst a wider adoption and integration of information technology into teaching and learning process have become widespread, the magnitude of use vary between environments across regions, and between institutions within countries. Research however, have shifted from the traditional e-Learning and learning management system (LMS) adoption, into how are converged technology solutions exploited in higher education (HE) spaces. Convergence anticipates information-society citizenry as defined by dependence on efficient technology solutions across all modern life faculties – be it work, learning or play. In the HE context, an always connected student, an IT literate, multimedia and network reliant leaner is assumed. Rigid e-Learning solutions can no longer meet the needs of this modern learner. For, mobility, synchronous access and independent enquiry are the defining characteristics – where interactive mobile technology solutions have become the basic requirements. In South Africa, many historically black universities remain behind in terms of infrastructure, IT resources and related skills sets. Rural universities in particular, remain on the periphery of the rural-and-urban geographic and development divides in terms readiness to integrate IT solutions into curricula and pedagogy. In the absence of basic insight, the readiness of these institutions to adopt mobile learning solutions for the 21st century student remains unclear. To this end, this paper explores mobile learning (m-Learning) readiness of the University of Zululand (UniZulu). We drew on the structuration theory (ST), in particular, the notions of structure, structuration, system, urgency, tools and resources - to unpack the status-quo. Methodologically, a qualitative approach – embedded on interviews of decision makers and personal observations by the researcher – was followed. In earlier m-Learning adoption attempts, resistance to change is never uncommon. For, unless a deliberate transformation of structure is enforced, comfortable social relations between actors will serve as a force of signification that reproduces regular social practices (the status-quo) over time and space. A lack of rules (policies & guides) and an enabling resources base, is clearly an impediment to m-Learning readiness efforts at UniZulu. Whilst UniZulu is committed to integrating educational technology into its curricula, adoption efforts are still at infancy. According to the ST insight, the institution has not applied changes to the basic conditions of structure (rules & resources), structuration and system needed to fast-track a transformation. That is, to sanction a reproduction of stale systems, and to significate new and desired social practices. As such, findings point to one conclusion - that the status of m-Learning readiness is minimal at best, and at worst – is bordering close to non-existent.

Keywords: Structuration Theory, information-centric learner, m-Learning, m-Learning Readiness, IT & Pedagogy, Quality Learning, Computer Assisted Learning, IT Integration, UniZulu.

1 INTRODUCTION

“...failure to learn is not a measure of the inherent capacity of the learner, but a reflection of learning systems (some part of the learning systems, such as materials, strategies, policies or infrastructure) that fail to address the needs of all learners” [17, pp: 522]

Following fierce students' upheavals against the cost of HE in south Africa, topics of conducive learning environments and learner-focused pedagogies have dominated discussions among curriculum planners, pedagogy theorists and academic programme administrators, across academic management boardrooms and conference floors [15].

Increasing demand for access to higher education (HE), and the apparent limitations to the quality of educational outcomes has ignited controversy around conventional teaching and learning approaches in HE spaces [15]. Learning environment status have become the most whispered-upon subject along academic corridors, even escalating into the latest pick-up line in academic cocktail party gossips [14].

Over and above this intriguing discourse, quality in academic programmes, the quality of outputs and
throughputs in HE have become increasing suspicious, with many armchair analysts finding the quality of school education in South Africa as the ideal convenient scape-goat. In particular, academic readiness of high school graduates entering university systems is cited as the main cause for concern [5].

Whilst there is a wealth of anecdotal evidence to support the demonising of school education, scientific studies suggests that there are more factors to this equation. For example, Moore [17] locates the problem right at “learning systems that fail to address the needs of all learners”. It is a sentiment that asks for a genuine systemic introspection. Here, a review of the appropriateness of our learning systems, curricula, pedagogies, tools and resources – to the learning needs of the modern learner has become urgent.

For this reason, a learning environment and related IT support tools at uniZulu is interrogated in this paper. In particular, the readiness of the university to integrate m-Learning solutions to its academic programmes.

1.1 A Learning Environment

In this paper, a learning environment refers to a space, setting and context for learning and related processes [12]. These three features imply a contextual presence [1], with learning as a purposeful process based on the notion of a goal and objective pursuit [14]. The centrality of learning in this equation, obviously, suggests that significance should be placed on the kind of learning that is embedded in teaching and learning exploits [15]. As HE institutions explore innovative methods, procedures and tools to enhance teaching and learning processes, the quality of learning environments should take centre stage [17].

Jacobsen and Levin describe networked learning environments as criss-crossed knowledge spaces that can be explored for different purposes and perspectives, with different learning possibilities [12]. In this logic, Pohjonen [20] differentiates between 4 types of networked learning environments: (i) real-time encounter model, (ii) the simultaneously distributed learning model, (iii) the independent enquiry model, and (iv) the time independent learning model. The 4 models differ in terms of locality and time, with the mobility component seen as a linking denominator between the attributes of the models [12].

A mobile learning (m-Learning) environment, which is a location where ubiquitous learning and knowledge transformation happens while the learner transverses – refers to a learning environment that supports the mobility of a learner and learning in mobile environments [16].

The mobile learning environment includes all possible aspects of, and factors that can have, an influence on the learning and sharing of experiences. Implications of this logic are that mobile learning environments are holistic.

Further, where a learning environment meets psychological needs of a learner, they are likely to be motivated to carry out learning tasks [13]. The learning environment, therefore, should stimulate, challenge and provide opportunities to use diverse talents [1]; [12]. That is, the environment should promote ownership, enable social interaction, a sense of belonging, independence, feel of being cared about and a sense of security [15]. For this reason, mobile learning should be prioritized in a learning environment for the learner of the 21st century.

1.2 Rationale for m-Learning Readiness

From the cognitive-psychology perspective, the independent construction of knowledge, anytime and anywhere, can promote a sense of achievement and self-worth [19]; [21]; [2]. Though learners in a fixed Web 2.0 environment can interact creatively with the content and with each other [18], an independent learner should be unrestricted to learn, anytime and anywhere [15]. In this respect, m-Learning tools such as networked mobile learning environments can promote learner autonomy, “accordingly with the goal of promoting opportunities for lifelong learning and individual study” [20, p370].

Whilst m-Learning have grown in significance, implementation readiness of institutions in deferent development contexts remains un-even.

Given the commitment of the University of Zululand to structure itself for relevance to the local, national and international context, its readiness for effective m-Learning implementations becomes opportune [23].
This paper explores the state of m-Learning readiness of UniZulu, to help inform its quest for enhancement of the quality of teaching, learning and ultimately, achieve its desired learning outcomes [22].

2 METHODOLOGY

Whilst information technology (IT) integration into academic processes have become widespread in academia, the magnitude and ultimately, outcomes - vary between university environments across regions, and between institutions within countries. Integration of m-Learning into HE teaching and learning spaces is no exception to this rule [15].

In its commitment to sustainable development and growth of its research, community engagement, teaching and learning, the University of Zululand has committed to “re-structure” itself “for relevance” in its objectives, formations, programmes, interactions and performance standards – across the board [22]. Advancing quality in teaching, learning and research is central to this vision and objective.

In effect, adoption and effective use of technology [23], including m-Learning solutions is emphasized in these endeavours. However, technology adoption is to yield impact facilitating outcomes, often would often require a solid techno-infrastructure basis. Given a legacy of resource limitations [22], this paper explores the status of the university readiness to implement the m-Learning culture and practice across its academic programmes.

An e-readiness movement assessing the preparedness of societies and economies to integrate into the Information Technology (IT) enabled networked world can be traced as far back to 2001. The focus was to understand the basic items such as the institutional resolve at an abstract level, as well as the available infrastructure and tools, and finally, the actual practices to signify the extent of readiness (at the very least) or maturity (at most).

In this is interpretive project, qualitative research methods, literature analysis as well as personal observations and direct interviews of the IT Director as well as the coordinator of e-Learning - were the main sources of data.

Structuration theory was then applied as an analytical lens to understand and translate data.

3 A THEORETICAL FRAMEWORK

Structuration Theory (ST) is an ontology of what exists rather than what happens in society, and a general theory of social organization. Hence, it is used to understand “what sort of things are out there in the world, [instead of] what is happening to or between them” [4: p108].

In its assumptions that “we create society at the same time as we are created by it” [10: p14], it rejects the notion that social phenomena are, solely, the products of the social structure or agency separately. Rather, it sees social practices as constituting both the individual (learner and educator) and societal (institutional) activities. Hence, structure is seen as activity-dependent [14]. In short, a joint involvement of society and individuals in structure, further informs the re/production of practices across time and space.

The main argument in this principle (of structure and agency) is that social structures and autonomous social agents are mutually constitutive [9].

Structures consist of norms/rules and powers of signification, domination and legitimation, where social agents make sense of rules and practices through continuous interactions. In the HE environment, we contextualize the m-Learning environment as part of the education structure, founded on the rules (policies and pedagogy), and system, enabled by certain relations between parties and their collectivities – as translated into regular social practices. An interplay between these factors would certainly inform the status of m-Learning readiness in an HE context, and will help determine the level of adoption, integration into educational programmes, and the actual usage of educational technology tools (systems).

Under the notion of structuration for example, compliance with the expected practices would be encouraged (motivated) while unacceptable behavior would be sanctioned. In the absence of deliberate transformative measures, it is what “does” and or “does-not” happen that would keep reproducing (signification) stale practices whilst sanctioning any deviation. Deliberate transformative efforts on the other hand, would encourage changes in regular social practices – towards adoption
and integration of m-Learning into educational programmes in an HE institution. In the mobile learning (m-Learning) context, a community of practice (including institutional e-Learning organs) would practically determine the signification process for individuals and groups.

Creating a conducive environment by the institutional organs, providing physical space and tools to facilitate adoption and use of m-Learning solutions for educators and learners, would be a key factor to this m-Learning structure.

Similarly, policies (rules) and social cohesion would define the social order. In the m-Learning context, policies and strategies represent a collective stance towards adoption.

Whilst rules will always serve as a navigation compass for sound practice, social cohesion would re-enforce collective (individual and group) acceptance, reflected in positive attitudes, marked by motivation to explore and use. In this case, adoption and use of m-Learning facilities would be informed by the general acceptance of, and loyalty to, these rules.

The ST context of m-Learning readiness at the University of Zululand is summarized in Table 1 (and elaborated in subsequent passages).

<table>
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<th>Structure</th>
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<td>- the medium or outcome of action [3] represented by <strong>rules</strong> and <strong>resources</strong> used by <strong>agents</strong> to interact, with <strong>agency</strong> as the ability for human actors (agents) to exercise <strong>power</strong> by recreating or <strong>transforming</strong> the existing structure [8].</td>
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| Rules: | e-Learning and m-Learning policies, methodologies, guidelines, guiding pedagogies, policies, and best practices. |
| Resources: | Technological tools (networked learning systems, interactive mobile learning tools, mobile hardware, interactive software programs & systems, emails, phones), human resources (skilled & unskilled individuals), relevant pedagogy & curriculum, finances. |
| Agents | Stakeholders: learners, educators, e-Learning coordinators, curriculum planners, community of practices, university administrators. |
| Agency | Stakeholder management, pedagogy & technology culture, lecturer & learner support environment, choice of system, access status, support system, quality management, and adoption of a technology. |

<table>
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<th>Structuration</th>
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<td>- Conditions governing the continuity or transformation of structures, &amp; the reproduction of systems [11].</td>
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| Structuration: | This is where m-Learning is being drawn upon by day-to-day project activities (agency). These activities are both constrained and enabled by dominant practices in teaching, learning, pedagogy and change, as well as the actual adoption of technology (in, particular, m-Learning solutions in the institution) (structure). Then, e-Learning policies (rules) & various enablers, tools (resources), operational practices, including the adoption & use of technology tools (agency), are mutually reinforcing and interdependent. |

<table>
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<th>System</th>
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<td>- Reproduced relations between actors or their collectivities, organized as regular practices, over time &amp; space [10].</td>
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| Systems: | Relationships among stakeholders Internal & external – Internal: administration, programme coordination, committee systems, Teaching and learning routines & practices. External: community of practice for educators & learners, relation with (and choice of) service providers; system support, sponsorships, etc. |

As an analytical framework, ST offers “what is” descriptive lens – rather “why is” explanations to phenomena of investigation.

Since we wanted to understand the status quo on m-Learning readiness, the ST framework offered a viable tool to describe (rather than explain) the status-quo.

We drew on this framework to depict a mandatory crisscrossing of structure, agency and system in the UniZulu m-Learning in the findings section.
4 RESULTS

Guided by the structuration theory (ST) framework, we assumed that total readiness (or lack-of) will be determined by a joint interplay between the aspects of structure and agency.

In the case of structure for example, the presence or absence, as well as the format and the associated interplay between aspects of rules (policies, guides and manuals), resources (including IT infrastructure and networked mobile learning tools and systems), and power-relational aspects would determine the status-quo.

From this assumption, we immediately ascertained the status (i.e. presence or absence) of rules (policy) and the format thereof. From this attribute of structure alone, we would associate the absence of rules – with the absence of a basis for a conducive m-Learning environment.

Resources are the second, and most fundamental attribute of structure. Thus, questions of m-Learning infrastructure and tools, as well as the aspects of structuration – which are conditions of that would determine continuity of existing practices, or a transformation of structures. In this context, aspects of social relations, academic culture and environment were raised in interviews the coordinator of e-Learning, and on the IT manager.

We allude to the findings in subsequent passages.

4.1 Findings

On the question of rules (policy) on m-Learning, commendable commitment to adopting educational technology solutions were cited in positive reverence in discussions with institutional stakeholders.

Though m-Learning in particular (or even mobile applications) were hardly cited by any of the respondents in discussions, references were made to “educational technology”, “e-Learning tools” and “systems”, often cited as “necessary innovations” to enhancing the quality of research, teaching and learning processes as well as community engagements. Nevertheless, mention of specific technology items was only limited to “computer labs”, “desktops”, “laptops”, learning management systems (i.e. Moodle), as well as operating systems such as Windows (Ms word, excel, power point, MS Access, and outlook), or Apple office as well as adobe office suite.

Further, technology was hardly (if ever) mentioned in the same line with curriculum and pedagogy in these exploratory discussions.

From ST perspective, these limitations alone – suggest poor m-Learning foundations or a lack of its readiness.

When it comes to rules – only a guide, and no policy existed to direct adoptions, integrations and implementations [7]. However, commitment through noble intentions to development the environment in this university in the long term, is encouraging. In its new Research and Innovation strategy for example, educational technology including internet connectivity [6] is cited as one of the development ambitions of the university. Literally, educational technology is appraised as a significant facilitator of educational efficiencies [15].

On the second question of resources, the reality is that basic ICT access remains a challenge for learners. As a result, technology integration into curricula remains key anecdotes on the wish list. For example, whilst broadband connectivity remains limited, plans are to install mobile hot-spots across in the near future [6].

Though the institution has already adopted an Open Source based Moodle learning management system (LMS) for its e-Learning solutions, it is yet to integrate this across its curricula. However, the m-Learning vocabulary, both conceptually and operationally, remained distant at the time of writing [7].

Though emphasis were placed on the m-Learning aspect, understanding the general educational technology infrastructure would offer a useful indicator of m-Learning readiness.

For this reason, questions to ascertain the status quo were also raised: How many subjects (or courses) are making use of an e-Learning system for teaching and learning on both campuses?

Responses were that:

- Faculty of Arts - 22 categories / departments offering 206 courses [7]
- Faculty of Science and Agriculture - 32 categories / departments offering 326 courses [7]
Faculty of commerce, administration and law – 12 categories / departments offering 179 courses [7]

Faculty of Education - 19 categories / departments offering 211 courses [7]

Assembled about the extent of educational technology usage in these academic programmes, the coordinator said that “not all these courses are being used and some are old modules that have remained on the system” [7]. Highlighting the richness of the tools in the system, he clearly stated that there is no linear pattern of usage.

Poor access to ICT for students also emerged as evidence of a lack of m-Learning readiness. For example, “a low desktop computer (900) to student (17 417) ratio of 1:19” was cited as a concern that has triggered alternative approaches to redressing access. Here, efforts towards portable lap-tops as the “rationale to provide students access to e-learning resources” had been explored by the institution.

Though laptops offer a mobile access, the thinking was not conceived from a pedagogical perspective, but as a mechanism to try to extent access. The lap-top support initiative - only for second and third year students however, is not proving to succeed. For example, “the current way of distributing laptops seems flawed as some students are reselling them for cash” [7].

4.2 Analysis and Discussion

Findings suggest that the University of Zululand is committed to integrating educational technology to academic programmes. However, adoption efforts are still at the very infancy stage.

Under the status at UniZulu for example, the absence of policy implies limitations in terms of implementation rules and procedures. In current practices, technology usage is hardly aligned with pedagogy. This exposes limited usage patterns - to inconsistent and unreliable practices.

A lack of reliable wireless connectivity across the campus, and a high student to computer ratio – means that students can only rely on fixed desktops that are only accessible during office hours in libraries and computer labs.

From the structuration theory perspective, an interplay between structure, agency and system does not point to the direction of signification and legitimation.

The problem is located at the structuration, where driver or champion powers remain passively subdued by those of the group, structures and context.

However, the status quo seems to be recursively re-enforcing. For, together with a lack of policy and of resources, lies a continued lack of m-Learning readiness, let alone integration and use these solutions.

Equally scarce is the educational technology and m-learning related pedagogical discourse, and the status quo is, naturally, continuously limiting development towards full adoption and integration of m-Learning into educational programmes.

5 CONCLUSIONS

The aim of this paper was to explore the extent to which UniZulu is ready to adopt and integrate m-Learning solutions to its academic programmes.

At face value, structuration theory appeared to offer a useful lens into this analysis. On closer examination however, findings pointed to a very basic form of a status-quo, such that a complex form of analysis become unnecessary.

Findings point to a simple verdict: they suggest that minimum requirements for basic m-Learning readiness are lacking. In effect, UniZulu is yet to develop a fair level of readiness to adopt and integrate m-Learning solutions to its academic programmes. Limitations in the coordination of the aspects of system (reproduced relations and related social practices) and structure (rules and resources) stand out in this analysis.

It seems the University is yet to fine-tune its stance on the subject of universal access to IT for students. Inroads on e-Learning and m-learning policy (rules), followed by a redress of broadband and connectivity costs (resources) should be prioritized. This includes addressing a lack of the actual IT tools and systems for students.
Equally important is also to encourage a positive interplay between academics, educational technology, pedagogy, policy, educational process, and learning.

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