

Pedagogy Considerations for e-Learning in a Military Learning Environment

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Abstract

The National Defence University Malaysia (NDUM) Kuala Lumpur provides an undergraduate education to the future officers of the Malaysian Armed Forces (MAF). The establishment is considered to be an elite university because it is the only tertiary military institution in Malaysia. The main curriculum is engineering education; there are seven engineering degrees offered at the NDUM. This paper attempts to analyse the pedagogical issues surrounding the design and development of e-learning courseware for a military learning environment. In so doing, the history of the NDUM and its importance to the country is examined, together with the current practices of teaching cadets. At present, the NDUM has not yet implemented e-learning technologies. However, because the need for e-learning technologies is crucial, it is argued that some pedagogical concerns must be examined carefully before the NDUM embarks on the planning and implementing of new technologies. Three implications are highlighted at the end of the paper.

Keywords: The National Defence University Malaysia; Military Academies; Military Education; E-learning Courseware Design and Development; Student-Centred Learning.

Introduction

The National Defence University Malaysia (NDUM) Kuala Lumpur provides an undergraduate education for the future officers of the Malaysian Armed Forces (MAF). The NDUM is considered to be an elite establishment because it is the only tertiary military institution in Malaysia. The main curriculum is engineering education; there are seven engineering degrees offered out of twelve academic degrees. This paper attempts to analyse the pedagogical issues surrounding the design and development of e-learning courseware for a military learning environment. In so doing, the history of the NDUM and its importance to the country is examined, together with the current practices of the cadets' learning. Due to the changing security scenario, there is an urgency to adapt a new learning and teaching approach. In effect, the NDUM has not yet adopted e-learning practices, but there have been preliminary discussions in that direction. To facilitate analysis and discussion, this paper is divided into four main sections. The next section analyses the NDUM, followed by an assessment of the issues surrounding the design and development of e-learning courseware. Implications, and a conclusion form the last section of this paper.

The National Defence University Malaysia

The plan to establish a tertiary military institution in Malaysia was first discussed in the 1970s. This plan was based on two urgent needs – firstly, to have a joint establishment that could provide both academic and professional military education concurrently, and secondly, to house trainees from the three different services under one roof. It is argued that this was the best way to develop an elite officer class. To achieve this, it is vital to instill understanding and respect between officers from three military services

during the early stage of their recruitment. The plan then was to recruit graduates from civilian institutions and train them as graduate officers over a period of 12 or 18 months. Alternatively, military personnel were to be sent to single-service military colleges around Malaysia. The main problem with this arrangement was the difficulty in attracting graduates to the armed forces.

As a result, in 1993 serious planning began to found a military academy. In February 1995, a memorandum was signed by the Defence Minister and the Education Minister proposing the formation of an academy. On 8th March 1995, the cabinet approved the formation of the NDUM. At the time of its establishment on 1st July, 1995, it was known as the Military Academy of Malaysia. Programmes at the NDUM are based on the co-operation of the Ministry of Defence (MINDEF) which provides military training programmes, and Universiti Teknologi Malaysia (UTM) which provides tertiary education. UTM was the 'natural choice' to become the academic partner because of its high reputation in engineering degrees. The first batch of undergraduate cadet officers (PKDT) totalling 172, started their military training and tertiary education at the NDUM in June 1995 (MINDEF Annual Report 1999).

The aim of the NDUM is to pioneer instruction in the fields of military training, education and research. Its mission is to create military officers who have the requisite skills to serve and lead the MAF for national defence. The MAF was embarking on its largest military modernisation programme under the Eight Malaysia Plan (2001-2005). Essentially, the purpose of the programme is to transform the MAF into a conventional force, moving away from counter insurgency warfare (Najib Razak 2001). Years of fighting communist insurgents has left the MAF with an uneven force structure. Thus, since the 1980s, the MAF has started a systematic process of modernisation, stressing a tri-service structure, a shift in doctrine, and the acquisition of new equipment (McNally and Morrison 2002). As a result of this, the establishment of the NDUM became one of the critical factors in ensuring the success of the modernisation process. The Malaysian government requires the MAF to capitalise on advances in Information Communication Technology (ICT). This is to help foster knowledge-based armed forces. Accordingly, the MAF's Chief of Defence Staff puts forth the importance of technology and technologically adept forces when having to face the challenges of the 21st century, which come in the form of both traditional and asymmetric threats.

In the advent of ICT and Information Technology (IT), there is an urgent need for the MAF to generate new approaches and to tighten its military strategies by incorporating ICT and IT. This is a crucial step, and the elite military institution has the biggest challenge of all, in providing its future military leaders with the right ICT and IT skills. Thus the NDUM's objectives are critically linked to the National Defence Strategy and Foreign Policy, which stress the need for self-reliance, regional co-operation, external assistance, and a conciliatory approach to regional and global disputes. Suitable education programmes, which should incorporate the use of ICT and IT, are needed to ensure that the future 'guardians' of Malaysia receive the best education. This may help to mould PKDT into highly talented and loyal defenders of the nation.

The Learning Environment at the NDUM

As the university produces the future military officers for the MAF, it is crucial that PKDT are given adequate opportunity to develop not only their technical skills, but also their generic skills. Technical skills refer to skills related to the academic courses, for example an understanding of mathematical principles or current security issues. Generic skills, often known as 'soft skills' are skills that are developed whilst learning. They can include leadership, communication, critical, strategic thinking and planning, as well as management skills. The technical and generic skills are reinforced in both of the academic and military curricula at the NDUM.

The traditional education or face-to-face (f-t-f) approach is still a relevant strategy to educate PKDT. The academic and military curricula at the NDUM are supported by lectures, tutorials and laboratory experiments. The teaching philosophy is very much a 'tell-and-test' approach, and PKDT are usually spoon-fed. Nowadays, PKDT at the NDUM still rely heavily on lecturers and tutors, even though they are in their final year of study. Attempts to reduce their dependency have been unsuccessful due to factors

such as lack of autonomy and critical thinking skills. It is argued that because the learning environment at the NDUM is influenced by the military protocols and customs, PKDT are exposed to a behaviourist approach, that is 'drill-and-practice', which is prominent in military training and institutions. Nevertheless, the use of technology, especially e-learning technologies, is a better-known strategy that can help to develop independence, and critical, as well as strategic thinking skills in students. This is because these new technologies allow students to make mistakes without imposing penalties, and they lead students to critically evaluate scenarios before attempting to solve them. That is why it is essential for PKDT to be given the opportunities to learn with e-learning courseware that is structured accordingly. Also, with the Information Age and technological capabilities of the MAF, it is inevitable that PKDT will be trained in a technologically assisted medium so that they will be ready to meet the challenges that they will face once they are in the workforce.

In justifying the needs for e-learning technologies at the NDUM, it is essential to assess the main learning theory that is argued to be the anchor in e-learning courseware. E-learning has often been associated with constructivist principles of learning. This relationship is perhaps due to the fact that new technology provides students with almost unlimited access to information that they require in order to do research and test their ideas (Becker 2000). Most importantly, as students engage in new forms of learning, they simultaneously expect their teachers to offer learning opportunities in exciting and engaging formats. This could only be made possible by applying constructivist principles in the learning process (Bonk & Dennen 2005). Digital technologies also facilitate communication because they allow students to present their views to various audiences, and also expose students to the opinions of different types of people. All of these conditions are best for an optimal constructivist learning environment. A principle in constructivism is to provide a context for the student in order to teach him or her concepts of wholes. The context should place the student in a situation similar to the one in which he or she is going to apply the knowledge, where understanding is more important than memorising facts. It is argued that because PKDT must have skills that can be promoted more readily with a constructivist approach, their e-learning courseware must be designed and developed with constructivism as the main framework.

Some Pedagogical Considerations

The emergence of e-learning technologies converges with trends in new pedagogy that allow for greater student control, personal responsibility and collaboration. Creating collaborative learning environments embraces the concept of active learning – students actively “constructed” their knowledge with peers and teachers, creating an arena where different discourses and learning styles could comfortably co-exist (Roschelle et al. 2001). Self-directed students who want meaningful and engaging activities, as well as educators willing to experiment with a variety of techniques and practices to individualise learning, tend to be more attracted to technologically supported settings such as e-learning technologies (Wagner & McCombs 1995). E-learning provides a suitable platform in which student-centred principles (one manifestation of constructivism is student-centred learning) are particularly relevant as students become the centre of the learning environment. This view has been strongly supported by researchers who claim that courses conducted through computer technologies require active learning strategies and participation (Peirce 2003); and that online pedagogy tends to be more student-centred than f-t-f teaching and learning (Berge 1997). Furthermore, in successful online courses, students may assume significant instructional roles such as offering instructional tips and constructing new knowledge that was once the domain of educators (Harasim 1993). This could prove especially relevant to the aims of most tertiary military institutions where students are expected to assume larger roles and take command and control of most situations.

E-learning could provide opportunities for students to construct knowledge, actively share and seek information, generate a diverse array of ideas, appreciate multiple perspectives, take ownership in the learning process, engage in social interaction and dialogue, increase participation and reflection, develop multiple modes of representation and become more self-aware (Oliver & McLoughlin 1999). In essence, technology-rich environments could support the engagement of students in meaningful contexts, thereby increasing the ownership over their own learning. Thus e-learning appears to provide a viable teaching and learning platform for student-centred learning. In the past decade, more work has been undertaken

on the question of how to engage the interest of students (Bonk & Reynolds 1997). Levin & Waugh (1998) offer approaches, such as online collaborative teaming, online questioning and answering, technology resource searching and evaluation, project generation and co-ordination and student publication of work. Oliver & McLoughlin (1999) argue for the development of tools for learning through a range of resources that support diversity and higher order forms of learning.

Notwithstanding these positive notes on e-learning, four issues have arisen when designing and developing e-learning courseware. It needs to be noted that although these issues are not unique to military learning environments, they present pedagogical challenges that can deter attempts to use e-learning technologies, especially at a young institution such as the NDUM.

Firstly, it is crucial that e-learning programmes are based on students' learning needs; thus the most suitable learning theories must be present in the courseware. Debates on the best learning theories suitable for courseware are not new. Scholars such as Jonassen, Mayes & McAleese (1993) and Ertmer & Newby (1993) suggest three stages that can be applied in the design of courseware. For introductory learning where students have very little directly transferable prior knowledge about a skill or content area, the behaviourist approach is the most appropriate learning theory to be used because it is predetermined, constrained, sequential and criterion-based. Since students are in the initial stages of schema assembly and integration, 'drill-and-practice' can help them to build a schema, and provide an anchor for the future endeavour of learning. For students in the second stage, or for an advanced knowledge acquisition, a preliminary constructivist approach may be introduced where tasks require students to have an increased level of processing ability. In the final stage of knowledge acquisition, students are able to make intelligent decisions within the learning environment. A full constructivist approach will work well in this setting whereby the tasks demand high levels of processing. Further, researchers have indicated that an online learning environment utilises the approach of an integrated behaviourist and constructivist model (Chang & Fisher 2003). Laurillard (1993) further stresses that the best learning approach is more likely to require an integrated combination of several media, than a single medium. It is claimed that this model offers a structured approach for basic skills or the content of the lesson (by utilising behaviourist principles), while the constructivist design of the course includes motivating and empowering students in their course of study.

Secondly, there is the issue of the Instructional Design or ID of the courseware. Constructivists maintain that students should be constructing their own knowledge, whereas much educational courseware depends on prefixed designs and outcomes. Moreover, these are designed by instructional designers, with little or no direct contribution from students. This has certainly hindered the possibility of students being freer and more creative when constructing or reconstructing their own ideas. Educators need to be aware of this problem, because over-design threatens to undermine the whole principle of student-centred learning. Moreover, as educational markets have become more complex, and offer more variety, there is also the question of how to choose the right courseware that will promote critical thinking skills in students. Challenging courseware of this kind is scarce, and courseware specifically designed for particular professional needs is even scarcer. Educators may instead need to design their own courseware, but in a manner that includes some capacity for the students to have an input into the design so that they may also have some control over their own learning outcomes. It is suggested by Jonassen (1994) that tools for designing courseware should be given to students, not the designers, because students are supposed to achieve the learning goals based on their own pace and learning preferences. This is a highly radical thought, and one that certainly appears to go against the tendency in many countries to give the task of designing courseware to consultants and corporations.

The third issue that has assumed growing importance in the debate on e-learning technologies is the concern that most courseware does not appear to have transformed the educational process in the manner expected during the early days of the student-centred learning movement. This disappointing outcome has occurred for two reasons. Firstly, while there is a call for incorporating student-centred approaches in education, there has been an obvious absence of pedagogical tools for technology-based instruction (Marginson 2004; Oliver & McLoughlin 1999). Most technology-based tools that are currently available have not revolutionised education as promised. Instead, technology and courseware mostly

facilitate course administration and registration procedures. This feature can be described as a 'technological surface value', which suggests that technology is only used to facilitate the process of learning – management delivery. It does not guarantee a 'technological deep value', which means when learning through technology has a real impact on the students' understanding of new information. Most technology-based courseware has been embedded with devices for tracking, managing and controlling student learning, rather than features that promote innovative ways of nurturing student self-control and responsibility for learning. Secondly, all too often, students are forced to learn from technology rather than with technology. The distinction is based on the recognition that students who learn from technology are engaging in the same process as when they are learning from teachers. Technology has become the teacher surrogate and students have remained as the passive recipients of knowledge in both systems (Jonassen, Peck & Wilson 1999). When students learn with technology, they adopt a more creative, interventionist and initiator role in their own learning process.

The last issue of courseware design and development is that educators themselves must not become overly excited about using these technologies in their teaching. Educators need to approach technology "with caution, understanding and scepticism" (Synder 2001) and not get carried away by the hype (Bates 2001). This is because technology is merely one amongst many platforms to facilitate the teaching process. Even more importantly, technology cannot replace the role of mentors and human educators. Arguably, the use of technology can help enhance the teaching process, and may also assist students to focus more on 'knowing what to know', where to find the new information, and how to store knowledge (Loveless, Devoogd & Bohlin 2001). These capacities are in strong contrast to traditional pedagogy, that is teacher-centred, which promotes the objective of 'remembering as much as possible' above all other goals. In short, educators need to consider new ways of thinking about how the human and technological factors can be brought together to promote more effective and more meaningful learning.

Finding solutions to these issues has not been easy because in many ways technological progress has outstripped the capacity of educators to develop pedagogical models that meet current needs (Bracewell et al. 1998). As Salomon (1998) has noted, this is an unprecedented moment in human history. The traditional custodians of knowledge, – the teachers and gurus – now find that the possibilities of technology are outstripping advancements in pedagogical and psychological theory. Yet the need to harness the technology by providing guidance, reflective discourse and feedback has become greater than ever.

Sensible responses to the four challenges of the design and development of e-learning courseware are gradually emerging. Bourne (1998) has developed a model that justifies shifting teaching time within universities away from testing students towards more mentoring. Bonk (1998) has created interactive technological tools that also promote reflection and self-criticism by providing online portfolio feedback Web Link Ratings. Oliver & McLoughlin (1999) have suggested how technology can be used to promote and support student inquiry, peer collaboration, resource sharing and higher order thinking. Other technology-based learning models look at the degree to which the technology is embedded or integrated into a course (Mason 1998) as well as the forms and directions of interaction utilised by Internet courses (Cummings, Bonk & Jacobs 2002). At the same time, the combination of other emerging technologies such as web-based learning, provide the opportunity to create a blended learning environment that is highly interactive, meaningful and student-centred (Kirkley & Kirkley 2005). It is, therefore, a reasonable assumption that the coming decade could witness a burst in pedagogically-based e-learning technologies.

Conclusion

The crucial implications of these pedagogical considerations onto PKDT and the learning environment at the NDUM are threefold. Firstly, because PKDT must be able to follow orders and commands (in order to lead in the future), it is inevitable that a behaviourist approach should be present, especially during the initial stage of the PKDT learning and training at the NDUM. Thus, e-learning courseware designed and developed for them must take this aspect into consideration because PKDT are the end-users of the courseware. Nonetheless, it is critical that the shift from a behaviourist to a constructivist approach to

learning is emphasised and reflected in their e-learning courseware, since PKDT must have the skills which can arguably be best promoted by using the latter approach.

Secondly, when the NDUM decides to plan and implement e-learning technologies, PKDT will be forced to adapt to a new way of learning. Due to the learning environment being supported by e-learning technologies, PKDT will have to assume more responsibility for their learning, and thus become more independent and active students.

Thirdly, e-learning cannot totally replace f-t-f sessions. As PKDT are 'groomed' to become military officers, they need the human contact with their lecturers and peers, and most importantly, they need to emulate their role models – the military lecturers at the NDUM. When the NDUM adopts e-learning technologies, proper planning is crucial; the university should firmly decide what roles e-learning technologies will play in the learning and teaching process.

In conclusion, the task of stimulating reflective learning and thinking in the military academies of the world is no less essential than generating these learning environments in civilian schools, colleges and universities. If Plato's ideas about 'guardianship' are still relevant today, then these creative impulses are even more critical in the military than in the civilian sector. If 'guardianship' has been replaced by more skeptical military motives, including domestic repression, international imperialism, superpower ambitions and oligarchic tendencies, then the need for an innovative learning and teaching environment in the armed forces takes on an even greater significance. It is a sensible expectation that creative forces are also forces that are capable of building a better and less violent world. For all these reasons, the pedagogical considerations examined in this paper should provide the guidelines for the design and development of e-learning courseware at the NDUM.

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