

## E-Learning and Simulations for Leadership Training

Jowati binti Juhary<sup>1+</sup>

<sup>1</sup> Centre for Liberal and Language Studies, National Defence University of Malaysia, Kuala Lumpur

**Abstract.** There are many debates and arguments about the praises and merits of e-learning and simulations. For many educational institutions, these contribute to policy and decision making about the appropriateness of implementing new technologies or the relevance of using them. Despite all these, new training establishments are eager to benchmark best practices, and ultimately to experience e-learning and simulations. The paper, as part of a huge new technologies project, will investigate whether e-learning and simulations can help leadership training for cadets at the National Defence University of Malaysia (NDUM). Since there is only one academic programme at the NDUM that uses digital technologies, 25 cadets from this programme were given five questions about e-learning and simulations, and honing their leadership skills with technology. It is found that there is a huge potential for e-learning and simulations to assist students in becoming better leaders. This paper argues that while the surface elements of using new technologies maybe questioned, the deep values of e-learning and simulations could be helping military cadets to acquire the critical soft skills for their future vocation.

**Keywords:** Leadership Training, Maritime Technology, National Defence University of Malaysia, e-learning, simulations.

### 1. Introduction

E-Learning and simulations are amongst new technologies that receive both praises and criticisms. Because of their potential, many educational institutions are attracted to implement and use them. On the other hand, because of their costs, many academics are sceptical about these new tools. Apart from the costs, many scholars argue about the effectiveness of e-learning and simulations in improving students' grades. Actually, there is no guarantee that any one learning and teaching tool could help students perform better academically. That is why it is always a wise decision to blend the teaching and learning approaches.

The National Defence University of Malaysia (NDUM) is the latest addition of higher learning institutions in Malaysia. Since its inception, the university is examining many teaching and learning strategies to be adopted for its educational philosophy. At present the university mainly adopts face-to-face teaching for all academic teaching and learning, with the exception of one academic programme, the Maritime Technology.

This paper attempts to investigate how digital technologies can be used to train military cadets to polish their leadership skills. Although the only one programme that uses new technologies at the NDUM is running academic programme, this paper will not look into how the students view these tools for improving their academic grades. Rather this paper is more interested to look at how soft skills are being nurtured in this academic programme. One of the elements of soft skills is leadership proficiency. As part of building leaders of characters, the NDUM is serious about producing quality graduates. Leadership on its own is a very complex subject matter; some scholars argue that leaders are not trained; they are borne to become one. Because of the nature of the NDUM's graduates, who will be commissioned as military officers, they must be exposed to the right blend of characteristics for becoming respectable leaders.

---

<sup>+</sup> Dr Jowati binti Juhary. Tel.: +60123344009; Fax: +60390514458.  
E-mail address: [jowati@upnm.edu.my](mailto:jowati@upnm.edu.my)

Before this paper goes further, e-learning and simulations will be defined for this particular context. The term *e-learning* refers to a range of activities that use information communication technology (ICT). These include internet-based, CD-ROM-based and interactive on-line teaching, amongst others [1]. In the context of defence and military institutions, e-learning could be defined as “the collective term describing the learning delivered using electronic devices, including web-based systems and computer and communications technologies anywhere and at any time it is needed or desired” [2]. *Simulation* is specifically designed courseware or programmes to simulate situations/events for the purposes of learning. These simulated situations/events depict scenarios from real life in the expectation that students can learn from reconstructions of events and situations that they are likely to confront in their professional life. Simulations are often built to engage students in situations or events that would be too costly, difficult or hazardous in the real world [3], and so enable them to ‘practise’ responses to such situations. One great advantage of simulation is that it allows military trainees to make mistakes without serious consequences [4]. Since mistakes can be a powerful learning mechanism when they happen in a safe and blame-free environment [5], simulation is considered to be one of the best learning tools. Complex operations in particular, can often be explained more effectively through simulations. Cadets at the United States Military Academy, West Point, New York, for example, are often involved in computerised simulations so that they can more readily see how to act and more quickly comprehend the consequences of their actions [6].

Soft skills, in Malaysian tertiary setting, are critical components for the graduates to acquire. In fact, as explained earlier, leadership proficiency is one of the seven core thrusts in the Compulsory Soft Skills Scheme for graduates of the Malaysian public universities. Coupled with the aspirations of the NDUM to produce intellectual leaders of characters, through its concurrently conducted academic and military programmes, leadership becomes one of the key assets of the university’s graduates. Although heavily researched, little is understood about leadership [7]. In broad terms, it is an inter-personal or social process of persuasion involving a series of complex interactions between leaders and followers, which depends on multiple situations. Organisationally, leadership is associated with influencing the belief and motivation of the followers towards some common goals. The military is relying heavily on the ability of the officers to lead and command. It is no surprise, then, that styles of leadership were examined thoroughly by the military, for instance, by the U.S. Army. According to *Military Leadership* [8], there are three prominent styles of military leadership, including authoritarian, participative and delegative. To sum up, leadership training is critical in the making of great leaders, especially military leaders and it is one of the soft skills that is not easy to measure and quantify.

The data for this paper were gathered from 25 naval cadets, who are enrolled in the Maritime Technology Programme at the university. They were informed that their responses will be used for a project on digital technologies for the university and each cadet answered five questions about digital technologies and leadership training. The data were categorised into three themes, namely leadership development, leadership opportunities and leadership qualities.

There are four sections in this paper, including this introduction. The second section describes the only academic programme that uses e-learning and simulation technologies at the NDUM, the Maritime Technology Programme. It is critical to understand the aspirations of this programme, which eventually lead to the implementation of e-learning and simulations as part of its teaching and learning approaches. The third analyses the data from the students’ responses and finally, a conclusion closes the paper.

## **2. The Maritime Technology Programme**

The lack of technological facilities at the NDUM is as surprising as it is dramatic given the Malaysian Armed Forces’ ostensible commitment to military modernisation. Given this great weakness, the singular example of the Maritime Technology Programme at the NDUM, assumes even greater significance. This programme provides training for cadets who will navigate Malaysia’s small fleet. To qualify as a navigator of Royal Malaysian Navy ships, the NDUM cadets are trained and assessed on the Computer-Based Training (CBT) laboratories and ship simulator. By insisting on this training programme, the NDUM is conforming to the international requirements of the Standard of Training and Watch Keeping Certification 1995 (STCW 95).

In the NDUM, this Maritime Technology Programme is the only one that uses e-learning [CBT] and simulation technologies. It is very essential for the cadets to have these two tools. The reasons for this are threefold. Firstly, if the NDUM wants to be effective and efficient in teaching and learning, the programme must have the CBT and simulators. This is because naval cadets cannot visualise the problems and tactical aspects of navigation. Secondly, the accreditation for seamen or ship navigators requires that students are taught using the CBT and simulators. The facilities must be validated and certified by the STCW 95, a world standard certification. This world standard certification is crucial to be employed since the terminologies used are standardised. Thirdly, students will face problems on board real ships if they are not trained and taught first using the CBT and simulators. Students must be exposed to the CBT and simulators first and gain some sort of level of competency before being allowed on board a ship. Muirhead [9] also stressed that such a simulation programme is an important way of improving ship and crew safety. Given that Malaysia's navy is roaming international waters, the NDUM training programme had no option but to comply with international standards or risk being banned from proceeding beyond territorial waters.

The database and software for the laboratories and simulator came from Germany because the offshore conditions in Germany are very similar to those in Malaysia. In 2005, the simulation programme was fully operational. While the CBT laboratory is used mainly for self-directed learning where cadets can come at any time to learn, the simulator recreates a real navigation cabin on ships. Thus there is a Captain's role, a Navigation Officer's role, a Radar Plotter and other related roles. Beyond training the cadets, the simulator is used for the assessment of a cadet's competency levels. With the use of new technologies, the programme is preparing cadets to shift towards automation and the concept of multi-skilling.

The arrangement of the teaching classrooms is such that a student can progress from the Maritime Technology Laboratory (where they study, for example, maps showing Malaysian territorial waters) to the CBT laboratories where they can test their knowledge using on-line quizzes. The cadets can return as often as they want to the CBT laboratories – in this sense, there is a self-directed learning component at the NDUM – although it is not available to the general body of cadets, as only 20 percent of the cadets population was enrolled in this programme. From there the cadets have sufficient information and training to begin using the ship simulator which teaches them how to navigate through the waters studied earlier in the Maritime Technology Laboratory. Each week, for the entire duration of this four-year training programme, students spend between two and three hours improving their skills and knowledge moving between these three different laboratories. As has been noted by at least one commentator [10], the ship simulator forms a critical part of this training course simply because cadets only learn basic facts from the Maritime Technology Laboratory and the CBT programmes. It is the simulator that imparts the skills needed to navigate ships.

The Maritime Technology Programme provides a dramatic exception to the unimaginative and technologically backward learning environment at the NDUM. It also demonstrates the capacity that the NDUM has for incorporating new teaching methods, and this could potentially serve as an *internal* role model for urgently needed reforms. Indeed, there is some evidence that staff and students at the NDUM are demanding more e-learning and simulation approaches. The NDUM's Computer Centre has been pressured to increase the capacity to expand its functions into these new areas. Eventually, the NDUM's failure to shift into new learning technologies reflected the lack of pressure for this from the parent services or international organisations – the kind of pressures that resulted in the introduction of the Maritime Technology Programme.

The broad overview of this academic programme suggests that new technologies could be critical tools for students to graduate and be commissioned in the Malaysian Armed Forces. These new technologies have other fundamental values too as will be examined next.

### **3. Analysis and Discussion**

This section will analyse and discuss the data based on three themes: leadership development, leadership opportunities and leadership qualities. The cadets' responses in general illustrate that they accept new technologies in at least two different layers; first for academic purposes and second to help them in

leadership training. The first is evident in some of the supporting details given by the naval cadets while answering the questions; the latter is discussed in the next three paragraphs.

Leadership development suggests that cadets will develop their understanding of leadership, and the importance of leadership in their daily life. The questions related to this theme were (a) *In your opinions, what is leadership* and (b) *How would you rate your understanding of leadership after using new technologies*. 95 percent of the respondents believed that they know what leadership is all about, that is, the act of leading other people. The other five percent respondents were quite vague when answering the first question. Meanwhile, 80 percent respondents felt that the training through simulations better enhance their understanding of leadership skills since they have to play many roles. 10 respondents said that leadership is not only for officers but for everyone on board a ship; they realised this when they had to become the subordinates in the simulator. These positive responses show that the cadets are acknowledging that they are developing their awareness and understanding of the importance of leadership skills. It also shows that new technologies have at least two critical values; one for academic training and one for soft skills training.

Leadership opportunities refer to the space, time and venue for students to practise their leadership skills. Two questions were dedicated for this theme and they were (a) *In what instances are you required to practise leadership skills (in the CBT or simulator), and how do you practise the skills* and (b) *How about opportunities in other courses that do not use e-learning and simulations*. About 97 percent of the respondents claimed that they were expected to practise their leadership skills in both the CBT and simulator. For example, the cadets stated that the CBT required them to make decisions and to make them fast. Because of this, the cadets have to think of many solutions and sometimes asked the other cadets about the solutions. It takes a strong sense of leadership, that is courage and strong sense of self belief in order to make an accurate decision. Another example in the simulator is when the ‘captain’ has to navigate the ship. He/she must lead the other ‘officers’ in order to make sure that they ‘arrive’ safely at certain points. Ultimately, the naval cadets are used to the learning environment where leadership is part of the daily routine. The second question received various responses – 40 percent of the respondents said that they believed that the other courses that do not have e-learning and simulations do not provide leadership training. This is fully understood since the face-to-face interactions at the NDUM are mainly didactic in nature [11]. The other 43 percent said that they were not sure, and 17 percent respondents claimed that in some courses, they were expected to do group work and thus, sometimes lead the projects. Leadership opportunities appear here, according to these cadets, while leading and completing the assignments or projects. Nonetheless, the opportunity is slim, given that in normal face-to-face interactions, the teacher plays a more focal role. Thus again these naval cadets confirmed the values of new technologies for leadership training.

Leadership qualities examine the main characteristics of being an excellent leader. One question was asked for this theme, which was, (a) *What are the leadership qualities being practised in the CBT and simulator*. For this last question, the author received three main responses for leadership qualities that are apparent in the CBT and simulator namely, confidence, determination and quick decision making. New technologies have assisted the cadets in polishing their leadership skills by allowing them the space to be independent and self reliant. To illustrate, the cadets are expected to rely on each other when they are using the CBT. However, one cadet must be the leader in order to make sure that their tasks of answering the assignments are complete on time. One student remarked that although there is an appointed leader, each and every member of the team is also a leader. This suggests that everybody is aware of his/her roles; everyone must be accountable for his/her decisions. There are also answers given by the cadets such as self discipline and independence. Since leadership qualities are aplenty, it is expected that these naval cadets would give various qualities that they have assimilated, or qualities that they would like to acquire. Once again, the cadets believed that they were able to enhance their leadership qualities using digital technologies.

These three themes, leadership development, opportunities and qualities are in fact inter-related and dependent. This is because they exist in the technologically supported learning environment simultaneously. What the naval cadets have put forward are issues that they encounter and experience. There are unquestionably more issues that could be discerned if space permits.

#### **4. Conclusion**

While the Maritime Technology Programme is a technological leader within the NDUM, this programme also demonstrates that new technologies can never stand on its own [12]. Some kind of mixture is needed. But the nature of teaching technologies is not the only issue that needs to be considered if the NDUM wants to produce leaders of characters. Special attention needs to be paid to how cadets can be encouraged to actively participate in honing their leadership competency. The cadets need to monitor their own leadership processes by participating in leadership activities and articulating their views in appropriate contexts.

This paper is only a small part of a huge e-learning and simulations project at the NDUM. As this project is investigating the potential of digital technologies for military cadets, leadership training has certainly reaped the benefits from using new technologies. This can be seen in the only academic programme that has new technologies, the Maritime Technology Programme. Apart from the academic advantages, e-learning and simulations allow military cadets to polish their leadership skills. It is not necessary at this stage to identify whether the cadets embrace authoritarian, participative or delegative styles of leadership. The most important agenda is to make sure that they are aware of what are expected of them from their parent services; amongst the expectations is their ability to demonstrate leadership abilities when necessary.

## 5. Acknowledgements

The author would like to thank the navel cadets of the Maritime Technology Programme at the National Defence University of Malaysia for their time answering the questions.

## 6. References

- [1] Bonk, C.J. & Wisner, R.A. Applying Collaborative and e-Learning Tools to Military Distance Learning: A Research Framework. Technical Report: United States Army Research Institute for the Behavioural and Social Sciences, September. U.S.: Army Research Institute. 2000.
- [2] DELDMC. Defence e-Learning Delivery and Management Capability User Requirement Document. Version 3.5. U.K.: Ministry of Defence. 2001.
- [3] Gredler, M.E. Educational Games and Simulations: A Technology in Search of a (research) Paradigm. In Jonassen, D.H. (ed.). *Handbook of Research for Educational Communications and Technology*. New York: Simon & Schuster Macmillan. 1996, pp. 521-540.
- [4] Harris, P. (2002). How the U.S. Military is Reinventing Learning. Retrieved December 9<sup>th</sup>, 2004, from [www.learningcircuits.org/2002/nov2002/harris.html](http://www.learningcircuits.org/2002/nov2002/harris.html)
- [5] Hills, H. *Individual Preferences in e-Learning*. England: Gower Publishing Limited. 2003.
- [6] Cox, J. (2003, February 24<sup>th</sup>). West Point Learns Wireless Lessons. *Network World*. Retrieved December 10<sup>th</sup>, 2004, from [www.mobilevillage.com/news/2003.02.28/nw-westpoint.htm](http://www.mobilevillage.com/news/2003.02.28/nw-westpoint.htm)
- [7] Thomas, K. T. Understanding Educational Process in Leadership Development. PhD Dissertation. Victoria: Faculty of Education Deakin University. 2003.
- [8] U.S. Army Handbook. *Military Leadership*. 1973.
- [9] Muirhead, P. Technology and Maritime Education and Training: A Future Perspective. In Khine, S. M. & Fisher, D. (eds.). *Technology-Rich Learning Environments*. New Jersey: World Scientific. 2003, pp. 235-254.
- [10] Welsh, E. T., Wanberg, C. R., Brown, K. G. & Simmering, M. J. e-Learning Emerging Uses, Empirical Results and Future Directions. *International Journal of Training and Development*. 2003, 7(4): 245-258.
- [11] Juhary, J. The Military Academy of Malaysia compared with West Point: Learning Environments and New Technologies. PhD Dissertation. Clayton, Melbourne: Monash Asia Institute, Monash University. 2007.
- [12] Weller, M. *Delivering Learning on the Net*. London: RoutledgeFalmer. 2002.

