DISPARITY: THREAT OR OPPORTUNITY TO DISTANCE EDUCATION THROUGHPUT AT THE SOUTH AFRICAN MILITARY ACADEMY

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Abstract

Improved student throughput remains on the South African Higher Education (HE) priority list. To achieve greater throughput, all institutions of higher learning need to contribute. The South African Military Academy offers distance education (DE) programmes to employees of the South African Department of Defence (DoD). Its distance education (DE) programme, earmarked to become the main HE provider to the DoD, compared to its residential programmes, displays poor throughput. Poor DE throughput contradicts recent advances in educational technologies which provide a range of mitigation and support opportunities through the creation of learning spaces that mediate successful student learning anytime anywhere. This article contributes to the body of knowledge on firstly the disparate profile of Military Academy DE students, and secondly, their disparate access to learning technologies in their working and learning spaces. A survey among DE undergraduates and DE lecturers revealed disparity among respective DE students' HE-related demographics, and disparity in their access to learning technologies (LT). Resolving disparity in access to LT can mitigate demographic disparity to promote graduate throughput.

Introduction

Taking education to the nation is popular contemporary rhetoric. The need for higher education (HE) extends so much further than rhetoric, though. It "relate[s] to issues of redress and provision of lifelong learning opportunities for economic, social and personal development"[1]. However, "for flexible learning and teaching to really work, there must be major structural changes and attitude shifts" in universities to accommodate people who "want to study further while holding full-time jobs".[2] Distance education (DE) exceeds residential education as a flexible learning platform for the working student. DE enables teaching and

learning to extend beyond the reaches of lecture halls, offices and passages of the residential campus.

Structurally, military institutions are very similar to DE institutions. Military professionals are affiliated to a fixed institution, the SANDF, yet they are also detached[1] nationally to respective military units, or deployed beyond national borders to perform military professional activities. Military professional development through course participation and consequent rank promotion is often associated with physical migration. When a migrant-type working person, such as a soldier, engages academically in a migrant-type tertiary academic endeavour, competition for time, energy and psychological commitment increases. With that, physical and psychological insecurity is likely to increase also.[3]

However, dual commitment to work and study is not a threat, per se. Accurate and effective DE support through fitting learning technologies (LTs) can bridge apparent conflicts of interest and convert stressors into drivers of performance. LTs "seek to create and support robust environments for learning, discovery, and engagement for faculty and students that are grounded in sound principles of learning, and in a thorough knowledge of integrating technology for effectiveness and efficiency of effort".[4] DE offers most military professionals access to HE studies, which would otherwise be impossible. Understandably, military professional (work) demands often take precedence over personal academic development (DE studies), especially in a professional realm which traditionally regarded higher and liberal education as undermining military objectives.[5]

Currently, the DoD subscribes to generating a force led by educated officers and non-commissioned officers. Military leadership increasingly advocates that if it "insist[s] on drawing a broad line of demarcation between the fighting man and the thinking man [it] is liable to find its fighting done by fools and its thinking done by cowards".[6] When students, however, report that this view does not translate into affordance of reasonable opportunities to balance work and studies at unit level, DE throughput and reaching DoD objectives suffer.[7] Low DE throughput also affects soldiers' morale and self-esteem, two crucial elements of the "fighting [wo]man", adversely.

The DE programme of the Military Academy (MA) returns a lower throughput than its residential education programme. This is not a unique phenomenon.[8] Yet, if DE is to become the preferred mode of HE throughput of the

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[1] A period of duty at station other than on permanent transfer.

MA, reasons for a comparatively low throughput of DE graduates require investigation. In view of this particular research, knowledge was required of two factors identified through annual student feedback as major contributors to poor DE graduate throughput, viz. disparity related to demographic student profile, and disparity in access to, and competence in LTs.

Differentiation is not foreign to the military professional. It is in fact a natural component of a hierarchical system. However, when members of the same organisation enrol for, essentially, the same qualification, and those differences cause unwarranted and unexpected disparity in opportunity, differentiation is likely to impede performance. The Military Academy, an institution of higher learning of the DoD, aims to offer world-class military higher education through teaching and learning[9] to DoD personnel. Access to LTs both mediates learning transfer[10] and mitigates disparity in learning transfer.[11] Access to LT can thus not be disparate in itself if greater graduate throughput through LT is to be attained.[12]

Although it is hardly possible to isolate factors that fully guarantee greater throughput, it is possible to create effective learning spaces that optimise opportunities for greater student throughput.[13] Frequent radical changes in technologies demand of institutions to think radically about the affordances of technologies in effective learning spaces.[14] Emerging technologies provide more and improved opportunities to reach students in their work and study spaces.[15] An understanding of the work and study profile of DE students of the MA should provide opportunities for both learning mediation and obstacle mitigation through LTs.[16]

Even though the DoD and Department of Higher Education (DoHE) are partners in terms of delivering thinking soldiers, the nature and objectives of the military differ greatly from those of most other sectors of society.[17] A void exists in knowledge of the demographics of the DE worker-student of the MA, and his/her ability to access LTs. This article aims to fill that void.

Method

In 2013, routine annual student feedback revealed that DE students isolate two general throughput-impeding factors: a) diverse demographic profile and b) disparate access to learning technologies. Consequently, a formal survey was conducted to elicit data in terms of the extent of disparity that exists among students who, by nature of their profession, have different professional statuses (rank or position), incongruent access to resources, and dissimilar knowledge of and access to LTs.

A questionnaire was developed, based on the Information and Communications Technologies (ICT) students' survey conducted by Stellenbosch University in 2011. The questionnaire was contextualised to DE students in the MA. The combined closed and open-ended questionnaire elicited biographical data, as well as data about access to LT.

The student survey was administered from July 2012 through January 2013. A total respondent return of 92 (80%) in 2012 and 81 (51%) in 2013 was achieved. The uniform resource locator of the questionnaire and a clicker[18] number was included in the consent form. Student participants completed the questionnaires outside of formal contact time through digital devices of choice. Confidential individual interviews with rank-diverse undergraduate students were also conducted. Students in the MA are allowed 6 years to complete a first degree.[19] Thus, separating students according to academic year status was not feasible.

A similar survey was administered to lecturers from October 2012 through to January 2013 to elicit either confirmation or contradiction of student data. A survey administrator of the mother campus e-mailed an on-line link of the questionnaire to all DE lecturers in the MA. Thirteen lecturers (52%) completed the questionnaire. The reasons for this relatively low return require further research, especially since informal student reports of sporadic apathy are recorded annually. Individual interviews, recorded digitally, were conducted with three DE lecturers.

Collected data were interpreted by "relating the results and findings to existing theoretical frameworks or models [to] show whether these data are supported or countered by new interpretation".[20] Open coding was applied to collected data in order to gain a global impression of the content.[21] Results of the questionnaires and interviews aided in discovering common themes.

Findings and discussion

This section provides a discussion of findings that relate to the present study. Data on particular demographics, inter alia age, gender and previous tertiary experience, of a cohort of DE students were recorded. These data largely confirmed data collected over recent years during biannual induction weeks, contact sessions and routine interaction with students. Data revealed the following DE throughput-impeding factors: gender-based disparity, age-based disparity, disparity in time lapse between matric and current studies, rank/seniority-based disparity, and associated disparate access to DE-enabling resources (e.g. transport, LTs, control over work time for academic purposes, workload and ability to delegate tasks to free up time, et cetera). Post-based access to LTs, knowledge of information technology (IT), and

skills in using LTs have also been reported as factors impeding DE throughput. These findings are likely to assist in suggesting accurate student support through LTs.[22] Findings will be discussed descriptively. Mere numerical representation will not do justice to the lived reality behind numbers. Findings relate in general to demography-based disparity in learning participation in general, and disparity in LT access, in particular.

Age, gender, academic and professional seniority (titles or ranks) and educational status appear to be intrinsic and accepted discriminatory designations in the military.[23] The existence of external discriminatory factors such as those which affect academic performance in general and access to existing LTs per se were confirmed by participants in this study. When a rank senior shares a first-year class with a rank junior, the effect on learning in the shared learning space is potentially large. A well-implemented e-learning space has the potential to mitigate inequality in learning opportunities, provided access to LT is free and equitable. Respondents' reported experiences of disparity will form the basis of a discussion of the role affordance of LT plays in affording democratic distance learning spaces in a non-democratic working–learning space.

Age-based disparity

Of the DE student population at the MA, 53% (in 2012) and 52% (in 2013) respectively were adults between 30 and 50 years of age. Post-graduate students and others returning from routine military life for continuation of studies at the MA, almost without exception report general apathy by their 'older' leaders towards tertiary academic studies. Traditional career apathy towards academic studies and pioneer undergraduates' largely non-academic career paths cause DE students of advanced ages to have had prolonged absence from academic opportunities since school. The study found that ninety per cent of this age cohort has not engaged in any personal academic studies since matriculation. This is a probable explanation for a high dropout rate in this age group.

At the beginning of each semester, almost two hundred students register for between one and four modules, but more than 50% of fail to participate in any formative assessment activities. Of those aged between 21 and 30 years old, 47% reported very little to no tertiary experience. Lack of experience in DE per se was reported as this group's main reason for dropout, indefinite postponement and withdrawal at any stage in the academic year.

In an institution in which age is often associated with seniority, the question arises whether age (and rank superiority) is not a double-edged sword of

performance. It offers rank juniors-cum-academic equals the opportunity to outperform the rank senior academically. Conversely, older and more senior professionals feel embarrassed by own performance or comparative performance, and decide to withdraw to save face. In the military, seniority and command and control over juniors are regarded as the cornerstones of organisational success. It becomes an easy and often professionally supported alternative to simply part from academic studies to prioritise military professional tasks. This perspective requires further investigation.

The MA should prioritise a review of the role emerging technology can play in providing optimum opportunity for academic success in spite of age and age-associated differences, and sufficient protection of the individual in case of failure. A socio-psychological intervention might mediate and mitigate the effect of age difference and convert a current negative performance factor into a positive factor. Ways of utilising age, rank, gender and other differences as learning-enhancement factors rather than impediments to learning should be investigated.

Students universally struggle to adapt to a tertiary academic environment that is different to their academic–social experience at school.[24]. Tertiary studies on a distance learning platform demand even greater independence. Students migrating directly from high school learning to tertiary distance learning report much difficulty in making that transition.[25] First-year student respondents reported that they had to reconcile demands of adult social life, military career demands and HE learning demands. Their being novices at HE in general, DE and the associated LT requirements in particular, potentially increased risk of failure. Respondents in the present study, even those with prior residential tertiary learning experience, reported that it is difficult to cope with a learning paradigm that comprises predominantly self-instructional material.[26] These students require dedicated and continuous general academic support, as well as specific LT support.[27] They report that such support will assist them in adapting as early as possible to distance learning methods and technologies before full engagement in the DE experience.[28] LT, if made widely accessible, is empowering, patient and non-discriminating.[29] It allows students with differing abilities to catch up at varied tempos, in confidentiality, in isolation, if so preferred, and in conjunction, if so preferred.

Rank-based disparity

Rank and studying at universities is innately hierarchical and discriminatory, because not all officers have aptitude to attend senior military courses and not everybody can study at a university.[30] Uniform juniors and civilians see this as an

ideal opportunity to prove academic equity, even superiority, in a hierarchical employment context. Senior ranks sometimes experience fear of losing face to junior ranks if they either fail or perform worse than juniors.[31] These are negative motivational factors or extra-psychic loci of control.[32] Rank abuse is reported by junior rank respondents as a factor affecting their own performance adversely and favouring the performance of higher ranks. Sometimes rank abuse may extend beyond student-to-student relationships to student–lecturer relationships. A case in point is the relationship involving senior military professional DE first-year students and junior military professional lecturers.

This complexity, if managed properly, is not a threat to performance per se. Yet, when allowed to take effect, it can dishearten student peers who believe senior ranks are unduly favoured.[33] In real terms, students with senior military ranks sometimes claim right of access to limited LT. Respondents to this survey reported their dissatisfaction with senior officers having exclusive access to computers in their units. Conversely, senior officers justified technological access as essential to performing their routine professional tasks. This type of disparity is professionally permissible, yet not academically justifiable. Mitigation of this performance-inhibiting factor cannot be attained by restricting access of those privileged to have access. It should much rather be attained through providing wide LT opportunities to those without access. Fitting and well-functioning LT structures can enhance student-student and student–lecturer interaction. Turnitin, for example, is a non-discriminatory review system, which automatically projects the level of plagiarism committed by any student.

Lecturing respondents reported during interviews that rank differences interfere with student-to-student and student-to-lecturer interaction and freedom of expression in class during biannual contact sessions (induction weeks) and scheduled interactive television (ITV) sessions. LT can support and promote academic engagement beyond rank. It can counter fear that open and free communication between rank superiors and juniors will compromise professional codes of conduct and military professionalism.

Gender-based disparity

Of students registered during 2012–2013, 69% were male and 31% female. Prevailing pockets of cultural bias towards educated females in South Africa, backed by a prevailing perception that the military is a 'man's profession' contribute to a male majority registering for studies at the MA. Traditional and conventional gender roles create disparate space between the time women and men respectively finish

school and pursue further education.[34] Female students experience more isolation in the military work place than male students do.[35] Notably, those female students who do persevere often outperform male students and graduate sooner.[36] DE provides opportunity for almost all people to access higher education.[37] This should increase the potential of equity in HE enrolment in the MA, provided equity in professional promotion follows.

Two female respondents indicated that pregnancy prevented them from attending scheduled ITV sessions and contact sessions, which forced them to postpone their studies. Even though domestic responsibilities create conflicting demands regarding performance[38] for all students, female students often seem to be worse affected. A male-favoured work reality clearly prevents an institution otherwise dedicated to achieving gender equity from aligning itself with national and organisational gender equity objectives. LTs potentially offer female students mitigation of performance-inhibiting realities. If accurately applied, LT will assist in growing a larger nursery of academically successful female students which, in turn, will achieve a greater peer support base. While peer support is often cited as a primary academic performance-enhancing factor; comradeship is a cornerstone of the military profession.

Disparate valuation of dual responsibilities

Student respondents in this research reported demands of their work and studies as common reasons for them to drop out or postpone their studies. An inability to manage new demands on time seems the obvious cause. This is non-fitting of students who are professionally employed in a strictly time-structured professional setting. It is also a professional setting in which after-hours work is often the exception. Becoming a studying military professional thus offers a new productivity paradigm.[39] A fortified comfort routine thus appears to be an impediment to the liberal demands of tertiary studies. Seasoned military professionals, DE first-year students report difficulty in adjusting to this new demand.[40] Student support services should include both academic and non-academic aspects.

Disparity in rank appear to have impact, particularly on students in junior ranks.[41] Respondent feedback revealed that senior professionals regularly and often randomly shift responsibilities and tasks onto junior professionals. This does not include legitimate delegation. Refusal of either an abdicated or delegated task is not an option. Research confirms that students who find it difficult to reconcile conflicting demands of their jobs, families and studies tend to do less academically.

Some respondents reported rendering military obedience supreme, displaying willingness to obey an order no matter how unpleasant the task to be performed, even at their own peril.[42]

Clearly, this definition of military discipline, if narrowly applied and narrow-mindedly adhered to, creates space for low academic drive once academic and military demands compete for the same head space, effort, time and energy. A military–academic dualism can easily transform into military–academic discord. Fortunately, the significance of an academic qualification as a vital component of a well-rounded military professional is increasingly advocated within the DoD. This HE institution aims to produce such professionals. Disparity in value attached to HE tasks and military tasks is likely to impede graduate throughput. Affordance of access to and training in LT can mitigate the effect of students feeling double-burdened.

High expectations before registration for finishing a prestigious degree are deflated when HE study achievement is regarded as inferior to military achievement. Until a BMil degree is regarded as both an academic and as a professional achievement, students will find themselves left with little choice but to identify themselves more with their roles as military employees than that of being lifelong students.[43] In a recent open forum discussion with SANDF leadership, a junior officer appealed for the creation of a formal career path that will include being applied upon graduation in his field of academic expertise. Disparity in HE qualification and professional application devaluates the academic qualification. Thus, respondents reported low drive to perform academically once the demands of studying increase (a matter of 'when studies get tough, the tough go marching'). In spite of the above, many respondents reported notable personal satisfaction with obtaining a university degree. E-portfolios can be used as evidence of achieved learning outcomes, skills or competencies, which will inform career managers towards generating a high-performance career path for soldiers with degrees.[44]

Disparate expectations

Respondents reported not just the complication of dual responsibilities, but also the mass of academic work with which they have to contend. Students indicated that their course work is too much to cover in one semester, even though they are allowed to complete a three-year residential degree over six years. Lecturing respondents indicated that, based on recorded activities on the e-learning platform, students display low drive to spend time on academic demands, especially after hours. Access to LT beyond the workplace might affect this fact, since students are

dispersed across the country, and often register in isolation. Consequently, they report to have no access to peer support either in person or through technological connectivity, contrary to their expectations.

University culture often demands and assumes independence.[45] When LT are unevenly distributed, when access is limited, or when training in LT is lacking, an isolated DE student experiences even more isolation. Managers of LT within the DoD should devise innovative strategies to resolve the de facto isolation of DE students, to connect students of a rather disconnected or 'scattered' campus,[46] irrespective of the situations they are exposed to and the spaces they occupy. Those students who actually confirm their underestimation of the demands of HE studies, report physical and technological isolation as contributing to their inability to meet the unexpected demands of HE while working.

Disparate valuation of higher education qualifications

There is comparatively low military recognition for academic expertise (e.g. low-ranked medical professionals in uniform, junior officer-lecturers). Senior officers without HE qualifications fortify disparate valuation of rank and HE qualifications. Respondents reported that those students enrolling for studies are often criticised by military peers and superiors for "thinking [they] are better than [them]". They are often blamed for "shunning their primary [military] responsibilities" in favour of academic commitments.

Related to the above is respondents' disillusionment with organisational devaluation of an HE qualification and respondents' own perceptions of DE studies being 'just another military course'. This factor raises many questions about causes of students' naivety or ignorance in times of information overload and easy accessibility to information. Respondents reported seeing their exposure during registration and first DE induction sessions as eye-opening incidents. Ironically, 'older' first-year students reported being more reality-shocked than the younger respondents. The MA might consider deleting the term 'course' from its academic labelling as a means of attaining at least parity of value.

Military courses are often short, clearly defined and structured, often group-centred, often strictly regurgitative. They are often regarded as training necessities rather than as learning opportunities. Respondents reported that some military courses are often passed without much effort, tick-boxed as 'course completed', rather than 'content mastered'. Respondents are selected for studies by people predominately in uniform, lectured by a majority of lecturers in uniform, are routinely and daily exposed to military practices, are paid monthly as professional

soldiers, and are denied most typical student privileges and freedoms. They interact only two weeks per year with the MA on site. In the years before graduation, they rarely walk the streets and buildings of the mother campus. The need to pay the mother campus visits, was expressed widely by respondents.

Technology can be utilised on site or off site during recruitment, before university selection, during selection and after selection but before registration to inform prospective students. Study groups in units can be connected digitally. The demands of HE catch many first-year students off-guard. It is alarming, though, that DE students widely report their ignorance of very basic-level information of HE studies at the MA, and complete ignorance of its association with Stellenbosch University. Marketing and information platforms can be disseminated powerfully by means of technology, provided it is accessible to all.

Disparate enculturation

When students acculturate, they adapt socially by "picking up the behaviour, values and norms of a social group and adopting its belief system to become a member of the culture".[47] Without effective enculturation, distance education students become confused about the nature and purpose of learning at university.[48] Some students on the DE programme have prior institutional (MA) HE experience. They migrated from the residential programme to the DE programme. Although familiar with the institution and its academic demands, they are new at DE studies. Most of the DE students have either very little HE experience or no DE experience. Regrettably, the MA, like many other campuses, creates little or no opportunities to deal with students' effective enculturation,[49] largely because universities have little knowledge of students' day-to-day factual realities. Social media technology can contribute to an enriched enculturation experience for DE students. The biannual induction weeks might require restructuring to accommodate the reported acculturation needs of students. The induction includes yet is not limited to mother campus exposure, extensive library service orientation, writing a first assignment during induction, et cetera.

Disparate proximity to learning spaces

A learning-friendly residential student space contributes greatly to academic success as proved by many universities' current integrated learning-and-living programmes.[50] Distance learning spaces are more diverse and complex, less predictable, less structured, yet no less important for academic success. Knowing these spaces can assist in understanding the needs of those students occupying them,

and then assist the institution in providing accurate technological support to enrich those spaces. The survey revealed that 38% of respondents were renting houses, 35% were residing in their own houses and 25% were staying in military quarters (bungalows shared by up to 30 occupants). The relatively low number of own-title holders (35%) are attributed to the fact that these soldier-students can occupationally change stations regularly and on very short notice to engage in internal or external deployment.[51]

A significant number of respondents worked in military units either short, medium or very long distances away from their own homes. Military-academic students' operational environment often keeps them away from their families and so-called home units. Unlike in routine unit life, as explained earlier, in the operational environment, separation from families, long working hours and traumatic events are common stressors. Students on external or internal deployment are not just separated from their families, but also from academic peers and LT access. Respondents reflect that they often feel forgotten and deserted by their DE institution.[52] This feeling is fortified by a lack of recognition by media, little recognition from military commanders, lack of appreciation from the host country and a lack of recognition from home. Such isolation causes poor self-concept and feelings of inadequacy and insecurity and a lack of self-confidence.[53] Campus-based MA students receive reinforcement from peer support structures,[54] such as study groups and a senior student 'parenting' structure (senior student 'adopting' a junior student). Distance education students, however, are deprived of that kind of support. They report that they often think that they are not 'smart' enough to understand course material.[55] LT connectivity wherever, whenever, augmented by social media technology can mitigate this feeling of isolation and neglect.

Soldier-students have many obstacles to deal with routinely. When forced to rely on technology for their off-campus learning, additional stressors should be minimised.[56]If access to technology is as poor as reported by respondents, DE students are potentially set up for failure or poor performance. Poor access to technological support is aggravated by respondents' reported inability to use their mobile devices due to a lack of signal or rechargeability of mobile devices.[57] In such cases, students reported a preference for paper-based technology, textbooks and well-prepared, hard-copy study guides. However, Interactive Telematic Education (ITE) remains the preferred mode of DE delivery of the Military Academy and Stellenbosch University.

Interactive Television (ITV) is a platform offered by the university to facilitate the live presentation of planned lectures at least once a semester to distance students. All registered DE students are supposed to attend those presentations

relevant to their registered modules in centres countrywide. Yet, a maximum of only 36% attended the sessions in 2012 and 2013, while only 46% of lecturers presented ITV sessions once, and only 15% presented it twice. The present research found that only 35% of students who did attend sessions rated them very helpful, while 33% rated them less helpful. At the same time, only 58% of lecturer-respondents rated the sessions very effective. A relatively long travel distance and time to ITV sessions (up to 360 km) for a one-hour session, either as student or as lecturer, might contribute to this low level of interest and regard for ITV sessions. Students report that they often obtain formal instruction to attend the ITV session too late for them to obtain permission from superiors, or to arrange transport to ITV centres. ITV sessions are also sometimes marred by poor digital signal.

Most student-respondents regarded ITV sessions as largely one-directional communication. They reported the need for time to ask questions and to engage with their peers during sessions rather than being passive participants. ITV facilities seem to predominately replicate a traditional classroom or lecture learning environment, in which information is transmitted and clarified between the educator and student with no effective engagement. This finding corresponds with other research finding that people have difficulty in changing from unidirectional television watching mode to bidirectional ITV session mode, and that students learn better through dialogue.[58] Training of lecturers in conducting effective, engaging ITV, and of students in participating in ITV sessions should contribute to the effectiveness of ITV technology in generating greater performance and graduate throughput. Respondents indicated a greater preference for learner centre visits by lecturing personnel than for ITV sessions.

Deployment environments often require students to prioritise the demands on their time and energy. Students then often find 'education … the easiest thing to let go of'.[59] Students without structural support become insecure about their studies and are therefore likely to drop out and to resort to the security and comfort of military routine.[60] Sometimes praxis demands priority. Student interviews revealed that sometimes it is not a lack of understanding by superiors, but the simple demands of the profession that determine priority.[61] As one interviewee remarked, "I cannot expect to be excused from preparation for a military operation because of my studies. I am a career soldier." Medium- to long-term career planning can prevent soldier-students from being faced with such a psychological dilemma. Mobile technologies preloaded with course materials can be useful to deployed students who find themselves distanced from access to formal LT.

Conversely, soldier students often start or continue with their studies when on deployment because it affords them more time off during the day, especially if

deployed in a non-complex, peace-operational setting.[62] This perspective requires further investigation to contextualise the advantages and disadvantages of studying while deployed. What is clear, though, is that access to LT remains the lifeline of the DE soldier-student.

Disparate access to technology

A primary limitation to the effective employment of LT is the complication of offering relatively free access to technology in a space with a strict security paradigm. The DoD currently reconsiders ways in which it can embrace the benefits of both restricted and unrestricted use of technologies, while at the same time managing the potential threats associated.[63] The free use of technology by soldier-students of all ranks creates the potential for either co-incidental or deliberate diffusion of sensitive information which may compromise national security.[64]

In terms of lecturer access to technology, the following is reported: a) the particular LT relevant to field of study and lecturer preference should be available, and b) LT should be optimally failure-resilient to effect greater performance. Lecturer-respondents indicated that they had reverted to using more basic and conservative technology, viz. telephonic communication and emailing, to maintain regular, uncomplicated, failure-proof contact with students and to create a sense of security and consistency among students. That said, the mother campus continuously promotes and supports blended teaching and learning programmes, and expects its staff and students to respond accordingly.[65] The mother campus aims to maintain and improve its status as a world-class university and requires all its faculties to support that objective. Acquisition of LT is not a university responsibility, yet it provides soft technology by availing free software and quality training programmes. Thus, the conflicting status afforded to state-of-the-art LT between the mother campus and its Faculty of Military Science (in the MA) poses a potential threat to effective knowledge transfer, academic performance, student throughput and the status of the university.

The present research found that respondents with privately owned computers increased from 57% in 2012 to 61% in 2013. At the same time, students who accessed computers in Internet cafes dropped from 23% to 21%. However, even those with computers and smart phones indicated that they accessed computers in the Internet cafes rather than through personal connectivity because of the comparatively high cost of internet connectivity in South Africa.[66] Related to this, computers in units are either not connected to the Internet, or, when connected, are inaccessible after hours and even during working hours. During weekdays, transport

from Internet café to place of residence after work is irregular and unreliable, which affects students' safety. Therefore, respondents indicated their preference for Internet cafés over weekends.

Only 15% and 16% of the respondents indicated that they had access to computers in their units in 2012 and 2013 respectively. Some reported a lack of time to access those computers amidst busy work schedules. Others, mostly lower ranked, indicated that they lacked information on procedure for accessing computers in their units. Significantly, all respondents had mobile phones, 60% of which were Internet-enabled and 33% connected wirelessly in 2013. The current study found that students with smart phones increased from 60% in 2012 to 85% in 2013. Almost all respondents, 89% of students and 85% of lecturers respectively, reported email as their preferred mode of communication. They indicated a preference for emailing by smart phone in particular. Of the students, 34% preferred texting (SMS) for communication as a more affordable alternative. Another 62% of students indicated that they read their emails daily, while 32% read them once weekly, mostly after working hours or training.

Notably, 47% of respondents 40–50 years old did not have email addresses and were assisted to create them during the DE contact session. These students indicated that they did not know how to send or receive emails or attach files, such as assignments in particular formats (MSWord or PDF). They indicated that they would ask fellow students or colleagues at work to send their assignments. This practice complicates assignment administration as students often send assignments without proper identification. Sometimes the secondary sender attaches a file without any explanation. Screen casts can assist in software usage training, provided students have access to and knowledge of screen casts.

Ninety-three per cent of students with Internet-enabled mobile phones stated that they would consider using mobile learning to create anytime anywhere learning environments. These learning environments are well suited to soldier-student conditions because they support learning that is not bound to time and space.[67] At the same time, students on internal, border or external deployment indicated that they could not access the Internet via mobile due to limited connectivity or poor signal quality. Although 93% had Internet-enabled mobile phones, they indicated that they still preferred laptops or tablets for their studies, because of screen size.

Research affirms the limitations of mobile technologies, such as inconsistent platforms, small display size, short battery life, slow text input and others.[68] SUNLearn is the current preferred university platform.[69] Only 17% of students accessed Moodle (former e-platform) through their smart phones. Clearly, a

significant institutional training and empowerment intervention for both lecturers and students is required if LT is to be used effectively towards greater student throughput.

Disparate learning technology soft skills

Essential skills routinely required of students are the ability to word process, save or print document formats, and to edit text. Many respondents attended rural and peri-rural schools characterised by very limited report writing per se, and then pen and paper-based writing in particular. They were then employed into a profession with little demand for critical report writing (or typing) responsibilities, and often very low regard for thorough, well-structured and grammatically sound, extended writing. Consequently, this skill is largely underdeveloped in terms of linguistic competence as well as technical ability. Respondents indicated their word processing skills as 'not at all skilled' (2%), 'not skilled' (12%), 'fairly skilled' (39%), 'very skilled' (40%) and 'expertly skilled' (7%). Respondents' self-assessment is often proven to be reported as higher than de facto ability. Technology should be innovatively employed to hone both writing and technical (word processing) skills among students during contact sessions. This should be continued in their learning spaces off-campus where 90% of their products are conceived, word processed and finished. Existing and emerging LT can assist in honing these skills.

The effect on academic performance of a relatively high percentage of respondents unskilled at utilising digital technology in general, and word processing is particular is apparent. It affects product quality when lengthy assignments are required, and further affects performance directly when time-linked assessments are done on-line. Respondents who reported a lack of appropriate skills indicated that they often did not manage to finish time-restricted tasks such as timed quizzes on Moodle (now SUNLearn).

Extended academic writing is a skill largely neglected in most South African schools.[70] The extensive programmes in academic writing and researching skills offered by all universities confirm this fact.[71] Long time spent away from school, and the same time spent as soldiers employed in a largely non-academic professional setting combine to deplete this skill even further. Consequently, DE students as primarily older students often resort to vaguely familiar spaces to compensate for skill deprivation. Conventional libraries offer such a familiar space. Unsurprisingly then, respondents indicated the use of the institutional library as one of the most useful aspects of their one-week contact session. They indicated they often resort to libraries for military course assignments, even though typical military unit libraries,

and even public libraries, bear no resemblance to the comprehensive and updated technologically integrated libraries of leading universities. Only 4% of respondents reported being very skilled at using the on-line university library. This is a concern, because library facilities are more crucial to the distance learner than to the residential learner who has access to peers and lecturers almost on demand. In addition, 71% of respondents found referencing per se challenging when doing assignments. This finding corresponds with literature.[72] Absence of an information literacy module during the one-week contact session, due to reported time constraints, is cause for concern, and needs to be reviewed. Using TL to mitigate this shortfall requires investigation.

Disparate rationale for low throughput

Of the lecturing staff, 58% indicated that students did not adhere to the clearly stated course requirements. They expressed concern at many students registering and then dropping out without attempting even one assignment. The current study found that more than 50% of students registering become do not participate in any of the formative assessment activities. The current research found that 23 of a possible 300 students destined to graduate in time (6 years) in fact did so. Students report various reasons for non-starting, high drop-out or slow finishing. These reasons include modules being unreasonably challenging and the volume of semester course material being too big to be covered within one semester. Similar reports were obtained from a study among residential students at the MA.[73] Whether it is a matter of naive expectations as reported earlier, or a matter of concern with substance, this matter requires scientific investigation.

Student-respondents reported a need for more time during induction to engage with lecturers and actual course content, even an opportunity to do a first assignment and to obtain feedback and guidance before losing physical contact with their lecturer. This finding corresponds with literature, which states that distance education students need guidance in self-evaluating their progress and their understanding of course material.[74] Moreover, students in the present study indicated their need for detailed, individual feedback, rather than a few red remarks and a final mark. Nearly half the students (48%) were of the opinion that the comments they received on their assignments were too vague and not formative. Lack of timely and individual feedback can result in students' lack of opportunity to self-evaluate their learning,[75] and insufficient feedback can cause students to experience insecurities about their learning, making them feel detached from their learning space.[76]

Lecturing staff, conversely, indicated that they offer detailed feedback in good time. Lecturing staff with small groups indicated they gave individual feedback, while those with large groups gave more general feedback. The effect of the same lecturers teaching both residentially and DE requires investigation. Lecturers might be forced by workload to prioritise their residential responsibilities. Unfair treatment, although unintentional, is likely to ensue. Widely accessible LT, if intelligently and accurately applied, can enhance fair treatment. Podcasts or video casts, for example, can be used to avail recorded lectures, and to give individual feedback.[77]

Conclusion and recommendations

An analysis of the respondent profile in this study revealed that DE students were predominately older than residential students. Literature affirms that DE distance education students have prolonged absence from study opportunities since school, which often results in them being underprepared for academic social demands of higher education than their residential students.[78] Their lack of experience can be attributed to lack of budgetary support for DE full roll out, lack of structural organisational support from the SANDF, lack of DE specialists in the SANDF.[79] They find it difficult to reconcile the demands of their daily responsibilities, their domestic responsibilities and their study responsibilities. Respondents reported often being geographically isolated from their families, study peers and their institution of higher learning, and cut off from communication with the institution and their lecturers. Fitting provision and support of integrated LT are required. Affordance of appropriate LT, which are accessible anytime and anywhere, and training in those technologies for both student and lecturer on the DE platform could improve graduate throughput. An academic Boot Camp was implemented in 2012 to mitigate the effect of first-time university exposure on residential first-year students. ITE students have at least similar vulnerabilities, and should be included in an academic Boot Camp. Training of lecturers in effective DE teaching methodology and blended learning is imperative to greater graduate throughput. Soldiers are taught as a first fundamental of operational success to 'know their enemy and its terrain'. The same principle should be applied here: lecturers and the institution should know their students and their terrain to secure optimal educational–operational success.

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