Digital apartheid and the effect of mobile technology during rural fieldwork

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ABSTRACT

Fourth year occupational therapy students at the University of the Witwatersrand attend a three-week rural fieldwork placement. During this time, they are in a resource-limited environment with limited access to their usual Virtual Learning Environment (VLE) in a blended learning curriculum, thereby contributing to 'digital apartheid' between students from different socioeconomic backgrounds. This study investigates the effect of mobile technology during rural fieldwork to address 'digital apartheid'.

A self-reporting pre-test post-test survey design was used. Students self-evaluated their understanding of fieldwork learning objectives at the start of the year and again midyear. Rural fieldwork marks were collected midyear. The experimental group ($n_1 = 13$) accessed the VLE via the mobile technology, whereas the control group ($n_0 = 7$) did not. Data were analysed for significance and effect size. While there was no significant difference in the student marks ($p = 0.27$), there was a significant effect on self-evaluated knowledge gain for the experimental group's rural fieldwork learning objectives ($d = 2.02$) which was a notably larger effect size than their other fieldwork learning objectives ($d = 1.36$) and that of the control group's learning objectives. The use of mobile technology during rural fieldwork was a successful strategy towards 'digital democracy' by allowing students equal access to access the VLE.

Key words: Digital apartheid, mobile learning, mobile technology, occupational therapy, blended learning, rural clinical fieldwork

INTRODUCTION

The 21st century has seen the rapid penetration of Information and Communication Technology (ICT) into everyday life, driving changes to the way teaching and learning is conducted in higher education[1,2]. Anywhere-any time access to information has led to democratisation of knowledge[2] and sets the stage for global re-envisioning of higher education[1,2]. These developments have raised the notion of the 'digital divide', initially viewed as a generational chasm between those who have grown up with technology and those who have had to develop digital skills to evolve with it[3,4]. The more recent access related divide was identified as socio-economically between the 'have's' and the 'have-not's'[5]. This polarised view oversimplifies the challenges of integrating technology when considering the South African higher education landscape.

'Digital apartheid', first coined by General Colin Powell[6], refers to the systematic exclusion of certain communities from digital access and experience through political and business policies and practices.[7]

Powell[6] stated: "When I address this issue I use an even stronger term: digital apartheid. What is at stake is today's technology 'have-nots' – especially the young – and whether they may find themselves marginalized for life, because they lack the skills and tools to participate in our globalized, knowledge-based economy. This is true in America and in the rest of the world"[6:2].

The term 'digital apartheid' is multi-dimensional and thus a more comprehensive representation of the realities facing post-apartheid South African higher education. Graham[3] introduced a multi-faceted, pluralised perspective to the concept of the 'digital divide' by separating the material dimension and the virtual dimension that contribute towards advantaging some, while segregating others. The South African context adds the third dimension, that of digital skills development[4,8] to further compound student aca-
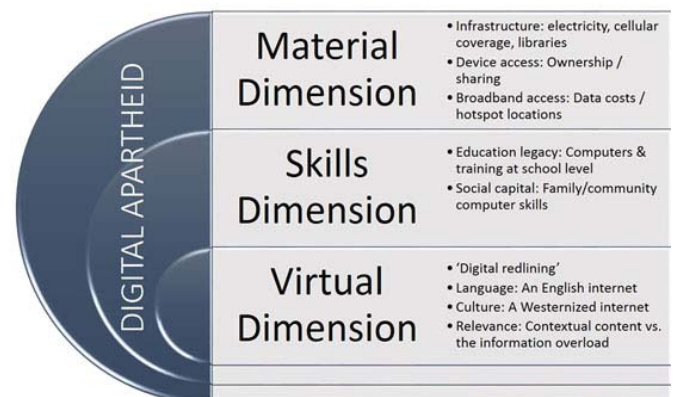

Figure 1: The dimensions of 'digital apartheid'

demic and digital literacy. *Figure 1* (page 20) illustrated the three dimensions of 'digital apartheid' and the factors to consider within each dimension.

The virtual dimension emerges from the intentional act of 'digital redlining' which takes on a number of forms. It may be under the guise of protecting an organisation from spam and illicit, harmful cyber-attacks, but has the secondary outcome of blocking or filtering out communities who only have access through cheaper portals, as these are attractive avenues for hackers and spammers[9]. Another form of 'digital redlining' from South Africa is the rollout of Vumatel's VUMA© high-speed fibre product offered only to neighbourhoods with a large enough portion of the community 'pre-committing' online to using the service[10]. Thus communities who have limited connectivity to begin with are less likely to be able to 'pre-commit'[10]. The VUMA coverage of Johannesburg reveals that despite the existence of a number of affluent suburbs[11], the township areas of SOWETO and Alexandria, as well as the high density inner-city, have been excluded[12]. This corresponds with 'digital redlining' in America as described by Cornish[7]. While the City of Johannesburg is attempting to bridge the inner-city access to Wi-Fi through the provision of 1000 hotspots at bus stations, libraries and clinics, this gives a mere 300 megabytes per day per user[13]. More subtle is the influence of a largely Westernised, English internet[3]. Search engines and social media have algorithms that prioritise frequently accessed content which in turn, influences the visibility of less frequently accessed content that may be of high value to a smaller cultural, language and regional context[3,14].

The skills dimension is most relevant in post-apartheid South Africa where there is still inequity of exposure to technology[15]. It emerged out of a community where ICT lessons were not part of their primary and secondary education until recently. First access to the internet was via a mobile device; social and cultural capital in supporting ICT skills development was just as underexposed, restricting ICT skills and digital citizenship transformation among peers or across generations[4,8,14]. Despite the 2004 White Paper on e-Education recognising the risks of social exclusion in the knowledge economy and mandating the integration of digital literacy into primary, secondary and tertiary education, by 2013[16] political complacency has perpetuated 'apartheid designed education'[17]. Only 19.5% of government primary and secondary schools in South Africa claimed to have internet connectivity for teaching and learning activities by 2015, while 67.8% did not have a computer centre[18]. The lack of these material resources severely hampers the development of digital literacy, highlighting the failure of the Department of Basic Education to achieve the goals of the White Paper on e-Education[16].

The material dimension is the most commonly cited concern when introducing technology into a curriculum. Despite near ubiquitous mobile phone ownership by students[19], the lack of power infrastructure in lower socio-economic areas[8] and exorbitant data costs[20], impact some students' ability to access their learning resources. In South Africa where mobile data costs are very high when compared to other African countries. In 2014 South Africa was ranked tenth in African countries for the cost of one Gigabyte (GB) of mobile data (almost four times the Tunisian price – the cheapest at the time)[20], but slipped to 16th in 2016 to almost six times that of Tanzania (current cheapest country)[21]. Of further concern is the patchy South African mobile broadband coverage and distribution of Wi-Fi enabled access[20]. These factors have the greatest impact on students from low socio-economic backgrounds, as internet access is dependent on available funds for data or physical access to a location with Wi-Fi[4]. Access to the internet via hotspots and internet cafés is largely an urban affordance and thus requires travel as an added expense for students selecting this avenue of access[14]. It is thus important when considering 'digital apartheid' to engage with all three dimensions.

Brown and Czerniewicz[4] suggested mobile technology as a plausible strategy towards the opposite of digital apartheid viz. 'digital democracy'. They highlighted that curriculum re-design would be necessary to facilitate Mobile Learning (mLearning). mLearning provides opportunities for students to access their Virtual Learning Environment (VLE) and other mobile-friendly online learning resources as and when needed, for 'just-in-time learning'[20,22,23]. By 2011, 84.2% of South Africans over the age of 15 years owned a mobile phone, 51% of which were devices capable of accessing the internet[19]. With the falling costs of mobile devices, many South African students and lecturers now have access to such devices[22].

In health professions education, mLearning provides a wealth of learning opportunities[23]. Pimmer *et al.*[24] explored the mLearning experiences of postgraduate midwifery students working in rural clinics and hospital settings. Their study indicated that mLearning was facilitated through communication with peers and facilitators (via social networking groups, text, chat groups and voice calls) and online searches for relevant information. The study outcomes highlighted students' abilities to solve clinical problems as they happened, reflect on their practice over time, access emotional support, and be exposed to unique learning opportunities through their community of practice. Students reported experiencing a sense of belonging while being somewhat isolated in remote rural settings by participating in mLearning group activities[24]. Mtebe and Raisamo[22] investigated factors influencing the adoption of mLearning in higher education in East Africa. The students reported an expectation of improved academic performance through mLearning which would drive the adoption of mLearning as a learning strategy[22].

The rapid developments in Tablet Computing Device (TCD) technology since 2010 (with larger screen and keyboard, while retaining mobility), create an advantage for TCDs over a typical smart mobile device for mLearning[25]. Byrne-Davis *et al.*[23] had similar considerations in their study of fourth year medical students in geographically dispersed settings, who wanted access to course resources and instant communication channels. Their study aligned to this study in the implementation of Problem Based Learning (PBL) across their curriculum and their view that the issuing of TCDs was an appropriate enabler of mLearning. Results indicated that students had initial concerns around their accountability for the safety of the TCDs in terms of theft or damage, but over a 12 month period felt the TCDs benefited their learning and ability to communicate with colleagues[23].

Blended learning has been integrated into the undergraduate occupational therapy curriculum at the University of the Witwatersrand since 2010. In striving towards post-apartheid transformation, the admissions policy for the degree selects 40% of students on the basis of exceptional academic performance, and 60% based on transformation criteria: ethnicity (20%), rural origins (20%), or education in poorly-resourced schools (20%)[26]. 'Digital apartheid' presented a significant threat to the success of blended learning and is addressed during the four years through on-campus access to resources, infrastructure, ICT skills development and digital literacy support, such that by the final year the students have largely reached a level of 'digital democracy'. Students are required to attend at least 1000 hours of mandated clinical fieldwork during the programme[27] and during the final year, the students attend clinical fieldwork rotations for the majority of the year in various practice domains. Three weeks are at a rural site focusing on community-based rehabilitation and district health services in low socio-economic regions. For blended learning to be accessible across the occupational therapy undergraduate training platform, the students attending the rural fieldwork rotations needed access to the VLE and online resources. During this time however, the students have limited internet access as these placements have unreliable network infrastructure and restrict student access to the few on-site computers. This presents a sudden return to 'digital apartheid' as those students from higher socio-economic backgrounds own their own laptop computers and can afford high data costs while away from home, while those dependent on the on-campus resources are marginalised or have sporadic access via their personal mobile device as and when they can afford pre-paid data.

METHOD

The aim of the study was to investigate the effect of students having access to TCDs with University funded pre-paid data during the rural fieldwork placement to achieve digital democracy. Two constructs were investigated: the students' perceived knowledge gain and academic performance.

A quantitative self-reporting pre-test post-test survey design was implemented over the first six months of the academic year to evaluate students' perceived knowledge gain across all fieldwork-related learning objectives. A quantitative analysis of academic performance considered the possible impact of digital democracy on student marks.

Setting

The final year occupational therapy students typically attend the three-week rural fieldwork rotation in pairs or groups of three per placement, and are accommodated at a rural hospital >300km from the university. The purpose of the rotation is for students to explore the role of occupational therapy in the field of public health in a typical rural, low socio-economic and impoverished setting; to develop knowledge of the district health system; and to acquire the clinical skills and attitudes necessary to practice appropriate occupational therapy related community rehabilitation. The students participate in community projects such as: an ongoing community project for people with disabilities; nursery school clinical and developmental screening with students from other disciplines; home visits to people with disabilities; community health education drives; and occupational therapy services at community clinics. The students are required to hand over documents (in the form of a paper-based carry-over file) between groups to facilitate continuity of the activities from group to group. Students rotate sequentially in three- to four-week blocks through the rural fieldwork and four other non-rural experiential placements, and are thus not all on the rural placements simultaneously.

The students' performance is assessed in four activities: an individual presentation; group presentation; written work in the carry-over file; and a clinical mark. The clinical mark is awarded by the rural placement clinical educator, counting 15% of the total mark while the remaining activities are marked by the university supervisor who lives in close proximity to many of the rural sites and seldom comes to the University.

Intervention

All students had prior experience in the use of the course VLE for learning activities and communication. Documents, guidelines and links to websites pertinent to rural public health were available on the VLE. A wiki page was created for each hospital for the students to add information about the hospital, thus informing the follow-on groups of the facilities, and generally what to expect. All groups had access to the same VLE content.

The experimental group was issued one TCD per pair, or two between three students at a placement. A pre-paid 500MB mobile data bundle was loaded onto the TCD mobile network Subscriber Identification Module (SIM) cards to ensure that the students were not carrying the data expense. This facilitated the students' ability to access the VLE and other resources anytime and anywhere during the fieldwork in an attempt to create digital democracy. The control group had on-campus access to the VLE before leaving and after returning from the rotation as they were not issued TCDs, but were not restricted in using personal devices during the fieldwork. So as not to disadvantage the control group, they were issued with TCDs during their urban community fieldwork under the same conditions as the experimental group had for their rural fieldwork. The urban and rural fieldwork marks accumulate to the public health curriculum with equal weighting.

Data collection

The survey instrument for this study made use of a 5-point scale based on the method used by McCannon et al.[28] in order to evaluate students' self-evaluated knowledge-gain during their fieldwork.

The scale ranged from '1=no knowledge and understanding' to '5=complete knowledge and understanding'. It consisted of a list of 47 learning objectives that pertained to the students' fieldwork requirements during the first six months of the academic year as listed in their curriculum guideline. These learning objectives were randomly ordered via a number draw. Fifteen of the survey items pertained to the Rural Fieldwork Learning Objectives (RFLO), while the remaining 32 were from Other Fieldwork Learning Objectives (OFLO) related to adult psychiatry, paediatrics and adult physical rehabilitation fieldwork. Students were instructed to rate their confidence in their knowledge if they were to write an exam or be examined on that skill at that time.

The baseline survey was paper-based and distributed at the start of the academic year during the fieldwork orientation session. The post-test survey was done mid-year during a one-week campus-based teaching rotation, by which time the students had at various times participated in the same spread of fieldwork rotations. The students were blinded to the study outcome of the RFLO as the target of the experiment, and that the use of the TCDs on the rural fieldwork rotation was being investigated. The pre-test, post-test data were compared, and the difference indicated the students self-evaluated knowledge gain. Data were analysed for significance and effect for the RFLO's for students with or without the TCDs as well as pre-test, post-test data of the OFLO's where students were not limited in their access to the VLE.

Academic performance, in the form of the final student marks for the rural fieldwork rotation was captured at the time of the survey post-test. The clinical educators were not aware of the study thus controlling for marking biases when allocating the clinical marks. While the off-campus university supervisor was aware of the study she was not specifically involved with the study details and was not aware that academic marks were being investigated as a measure. While she was therefore not specifically blinded to which students were in each group, she was also not sensitised to the research outcome related to academic performance. The study was designed by the University-based clinical co-ordinator and the first author.

Participant selection

All final year occupational therapy students were invited to participate in the surveys, convenience sampling was thus employed. Students were under no obligation to participate and they were made aware that they were free to withdraw at any stage without consequence. They were further advised that there would be a mid-year repeat of the survey. Participant allocation to the control or experimental group was directed through two situational variables: a) departmental allocation of students into fieldwork groups; b) timing of the rural fieldwork rotation of each group in relation to availability of the TCDs.

Control group (n_0): Students on the first two rural fieldwork rotations were not provided with TCDs for their rural fieldwork as these were not yet available in South Africa. They did however have the TCDs for their urban community fieldwork which is also a module of the public health course.

Experimental group (n_1): Students on the third and fourth rural fieldwork rotation were issued TCDs (irrespective of whether they had personal devices) in order to facilitate access to the VLE and other online resources.

The Human Research Ethics Committee (Medical) of the University provided ethical clearance for this study (M090920 and M160877). All students had access to a TCD for one of the fieldwork placements (either rural or urban) that form part of the fourth year Science of Occupation course. They were issued during the second quarter of the year to all students on rural or urban fieldwork and as such, were all introduced to the TCDs to support the public health curriculum during the same phase of the year.

Data analysis

The self-evaluated knowledge gain survey data and academic performance data for all consenting participants were paired. Baseline

and post-test (at six months) data for the control and experimental groups were captured by a research assistant on a Microsoft Excel 10 spreadsheet using the participant numbers.

The data were analysed for significance ($\alpha=0.05$) using the Mann-Whitney test for non-parametric data on Vassarstats.com[29]. The self-evaluated knowledge gain data are directional as students are expected to gain knowledge over the three-week fieldwork, and academic performance between groups is non-directional as either group could perform better.

The self-evaluated knowledge gain data were analysed for effect using Cohen *d*, and the academic performance data were analysed using Hedges *g* on the Coe[30] Effect Size Calculator in Microsoft Excel 10. The Cohen *d* analysis is appropriate when using repeated measures and Hedges *g* reduces the bias in unequal small samples. According to Hill *et al.*[31] a key benchmark in interpreting effect size is knowing the expectation of change in non-intervention conditions (the effect that typical fieldwork experience has on self-evaluated knowledge gain). This benchmark provides a comparative range from which to observe the effect of the change in an intervention group (the effect of the TCDs facilitating access to the VLE on self-evaluated knowledge gain). This study was designed to establish benchmark range of effect sizes through control group data as well as the experimental group providing its own non-intervention effect size of the self-evaluated knowledge gain in the OFLO. The intervention data represented the experimental group's RFLO self-evaluated knowledge gain.

RESULTS

The final year occupational therapy class consisted of 26 students of which six (23%) either declined participation or withdrew during the study (failed to complete the post-test survey). Of the participating students (N=20), 13 were in the experimental group (65%) and seven were in the control group (35%).

Self-evaluated knowledge gain was indicated by the difference in the pre-test to post-test 5-point scale scores for each learning objective. *Table 1* (below) indicates the self-evaluated knowledge gain for both groups and the average academic performance of the students during the rural fieldwork. The experimental group indicated a 0.91 mean difference on the 5-point scale for the RFLO's, compared to a 0.42 gain in their OFLO's. While academic performance was not significantly different between the groups, a medium effect size (Hedges g=0.50) was noted in the experimental group performing higher than the control group.

The within-group self-evaluated knowledge gain as anaysed for effect (Cohen d) with associated confidence intervals (95% CI) is represented in *Figure 2* (page ??). The intervention data effect

size for the experimental group RFLO (d=2.02, CI=1.02–2.89) is significant and exceeds the expected effect indicated by the other three benchmark data groups (range: d=1.10 to d=1.36).

As the groups attended the rural fieldwork at different times between the baseline and the post-test, the time variable was investigated. The mean self-evaluated knowledge gain within the fieldwork groups were consistent with their overall control or experimental group data.
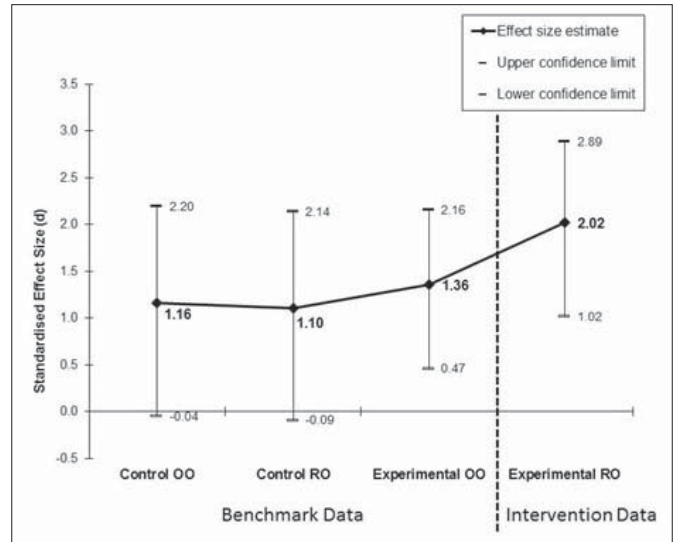
Figure 2: Standardised effect and confidence intervals of self-evaluated knowledge gain during rural and other fieldwork ($n_0=7$; $n_1=13$)

Figure 2 (above) illustrates that while the control group's self-evaluated knowledge gain effect size is not significant (CI=95% goes through 0), their OFLO had a large[31] estimated effect size (d=1.16, CI=-0.04–2.20), similar to that of the significant estimated effect size of the experimental group's OFLO (d=1.36, CI=0.47–2.16), forming a baseline of expected effect size. The control groups RFLO had a similar effect size (d=1.10, CI=-0.09–2.14) to their OFLO, whereas the experimental group's RFLO had a significant and much larger effect size (d=2.02, CI=1.02–2.89).

When comparing the self-evaluated knowledge gain between groups, there was a medium-large effect size (Hedges g=0.68, CI=-0.26–1.63) for the RFLO with almost no effect (Hedges g=0.08, CI=-0.84–1.00) for the OFLO.

Table 1: Average self-evaluated knowledge gain and academic performance

		Control Group $n_0=7$	Experimental Group $n_1=13$
Rural Fieldwork Learning Objectives (RFLO)	Within group self-evaluated knowledge gain (m, SD)	0.51, 0.47	0.91, 0.60
	Significant difference between pre-test and post-test (p)	0.0274*	0.0001*
	Between group self-evaluated knowledge gain (mean difference)	0.40	
	Significant difference between groups (p)	0.2187	
	Effect size (Hedges g, CI)	0.68, -0.26–1.63	
Other Fieldwork Learning Objectives (OFLO)	Self-evaluated knowledge gain (m, SD)	0.39, 0.27	0.42, 0.42
	Significant difference between pre-test and post-test (p)	0.0793	0.0018*
	Between group self-evaluated knowledge gain (mean difference)	0.03	
	Significant difference between groups (p)	0.9045	
	Effect size (Hedges g, CI)	0.08, -0.84–1.00	
Academic Performance in Rural Fieldwork	Fieldwork mark as percentage (m, SD)	64.1, 2.6	66.2, 4.7
	Significance (p)	0.2661	
	Effect size (Hedges g, CI)	0.50, -0.44 – 1.43	

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DISCUSSION

The students' self-evaluated knowledge gain was determined through self-reported rating of their knowledge of the learning objectives at the start of the academic year and again at the mid-year contact session. It is anticipated that students would perceive themselves to have gained knowledge through their fieldwork experiences. While a significant difference was not noted for the control group OFLO (p=0.0793) there was a mean self-evaluated knowledge gain of 0.39 on the 5-point scale. A significant difference in self-evaluated knowledge gain was noted in the control group's RFLO and both sets of the experimental group's learning objectives (Table 1 pge ??).

In this study the OFLO data of both groups represented the assumed 'digital democracy' conditions of their local academic activities (Table 1 page ??), which formed the benchmark of expected change (effect size)[31]. The control group's RFLO data was expected to represent possible 'digital apartheid' conditions of segregating students' access based on personal resources (material barrier/affordability) while away from campus[3] on their rural fieldwork placements. The estimated effect size (though not significant) was however almost the same (d=1.10, CI=-0.09–2.14) as for the control group's OFLO, and similar to the experimental group's OFLO's. This raises the question of whether we have truly achieved 'digital democracy' by the final year in the context of fieldwork placements that are near campus, where students stay at home or in campus residences. The fieldwork is full-day placement at an off-campus hospital or school, possibly indicating that the campus resources are not readily accessible to student irrespective of whether the placement is local or rural. Anytime-anywhere access does not apply in the same way as during their previous academic years, during which much of the academic day is on campus, and 'digital democracy' is more likely due to more equitable and effective campus-based resources.

It is thus reasonable to determine the non-intervention expected change/effect size benchmark to be within the range d=1:10 to d=1.36, as the trend of change was similar across the self-evaluated knowledge gain when comparing the control and experimental groups for the other fieldwork settings, and the control group's RFLO. The intervention data of the experimental group RFLO represented the strategy towards 'digital democracy' by providing TCDs with pre-paid data to facilitate VLE and online resource access equitably to all students (material support). The results illustrated in Table 1 (pge ??) indicated a significantly large effect (d=2.02, CI=1.02–2.89), which exceeded the benchmark expected change by 0.66, indicating that the use of TCDs during the rural fieldwork had a positive effect on the students self-evaluated knowledge gain and towards 'digital democracy'. The TCDs facilitated the opportunity for students in the experimental group to use various online tools during the rural fieldwork; such as access the navigation application, online resources such as the Department of Health policies and clinical information sites; and full access to their past and current VLE content (not only the Rural Fieldwork content). This opportunity possibly allowed the students in the experimental group to feel more connected to resources any-time and any-where throughout the day. Students' abilities to access and use information relevant to the fieldwork learning objectives possibly allowed them to feel more confident in their knowledge than the control group, and more confident than when they themselves were on other fieldwork without the TCDs. This was further supported by the medium estimated effect size (Hedges g=0.68, CI=-0.26–1.61) when comparing the RFLO between the control and experimental groups. Creswell[32] suggested that an effect size ≥0.5 as the standard indication of effect between two groups, which was achieved in this study despite the wide confidence interval (CI=95% goes through 0).

The academic performance during the rural fieldwork was not significantly different between the control and experimental groups but a medium estimated effect size (Hedges g=0.50, CI=-0.44–1.43) meets the standard indicated by Creswell[32] as a reasonable effect when comparing the groups, suggesting a possible positive impact of the students using TCDs on the rural fieldwork on their academic performance.

This study is limited in having a small sample size due to the number of final year occupational therapy students, resulting in a low statistical power to detect a significant effect of the intervention hence the confidence intervals for the control group extended below zero. The possibility of bias in the academic marks provided by the off-campus university supervisor are acknowledged. The study is also limited in not being able to track personal device usage to access the VLE and other online resources by students.

CONCLUSION

'Digital apartheid' presents a threat to the successful implementation of blended learning, where during fieldwork some students have better access to online resources than others, particularly during the final year occupational therapy rural fieldwork rotation. This study focused on self-evaluated knowledge gain and academic performance among students using TCDs to access their VLE during rural fieldwork and use of TCDs as a strategy towards achieving 'digital democracy'. Non-intervention benchmark data were established using the control group's self-evaluated knowledge gain in OFLO and RFLO, and the experimental group's self-evaluated knowledge gain for OFLO. Intervention data were collected for the self-evaluated knowledge gain in RFLO of the experimental group. Academic performance data were collected for both groups.

Caution is required in concluding that 'digital democracy' was achieved by the final year as the first three years are largely campus-based, and the final year is largely clinical and off campus. It appears that the effect size on perceived knowledge gain was similar whether the students were at local placements (OFLO) or the control group's rural placements without the material support of the TCDs with pre-paid data. The experimental group's access to the VLE and online resources via the TCDs during the rural fieldwork indicated an effect size that exceeded the range indicated by the benchmark data. The results suggest that facilitating anytime-anywhere access throughout the fieldwork day may impact the premise of 'digital apartheid' and have a positive effect on self-evaluated knowledge gain and academic performance.

As an outcome of this study the final year occupational therapy students are issued a TCD per pair while on their rural fieldwork, and the content and tasks available on their VLE have been tailored to further support their learning experiences. Further investigation of the status of 'digital apartheid' across all fieldwork placements is indicated and consideration should be given to strategies such as the provision of TCDs across all fieldwork placements. Such an endeavour would warrant a Costs Benefits Analysis to determine if the expense of data and TCD procurement would be justified. We are striving to build relationships with local hospitals to allow student access to hospital bandwidth and Wi-Fi, which would significantly reduce the costs.

This study suggests that the democratisation of digital access for all occupational therapy students on fieldwork placements will have a positive effect on equalising their opportunities for attaining successful academic outcomes and a positive impact on their perception of their performance on their fieldwork learning objectives. Mobile technologies present an enabling tool when provided with a curriculum that supports and integrates mLearning effectively.

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