Volume 59, Number 2, July 2019

AUSTRALIAN JOURNAL OF ADULT LEARNING
JULY 2019
59

59

AUSTRALIAN JOURNAL OF ADULT LEARNING

Volume 59, Number 2, July 2019

Adult Learning Australia

AUSTRALIAN JOURNAL OF ADULT LEARNING

The *Australian Journal of Adult Learning* (AJAL) has been published on behalf of Adult Learning Australia for over 59 years, and is now recognised as the leading journal in Australia on adult education. The Journal is widely regarded internationally in the discipline of adult education.

AJAL is concerned with the theory, research and practice of adult learning and adult community education. Its purpose is to promote critical thinking, research and practice in this field.

While the prime focus is on Australia, the practice of adult education and learning is an international field and Australia is connected to all parts of the globe, and therefore papers relating to other countries and contexts are welcome. Papers in the refereed section have been blind reviewed by at least two members from a pool of specialist referees from Australia and overseas.

Publisher

Adult Learning Australia
45 Moreland Street, FOOTSCRAY VIC 3011
Ph: 03 9689 8623
Email: info@ala.asn.au

Printer

SNAP Printing
Flinders Lane, MELBOURNE VIC 3000

About the Journal

The Journal is published three times a year in April, July and November. Subscriptions are $125, which includes GST for Australian subscribers and postage for all. Overseas subscriptions are $A200, which also includes postage.

Subscriptions, orders for back issues, advertisements and business correspondence are handled by Adult Learning Australia.

Papers for publication, book reviews and reports should be submitted online at www.ajal.net.au/peerreview. Notes for contributors can be found online.

Opinions expressed in the Journal are those of the authors and not necessarily those of the publisher.

AJAL is abstracted by the Australian Education Index, Educational Administration Abstracts, Australian Public Affairs Information Service (APAIS) and Current Index to Journals in Education. AJAL is indexed by EBSCO Education Research Complete, Informit Australian Public Affairs Full Text, ProQuest Central New Platform, and Voced, and is indexed in the SCOPUS database and the Web of Knowledge. It is also available on microfilm from University Microfilms, Ann Arbor Michigan 48106, USA.

Adult Learning Australia's members can download Journal papers from www.ajal.net.au. Non-members can purchase papers from www.ajal.net.au.

ISSN: 1443-1394

AUSTRALIAN JOURNAL OF ADULT LEARNING

Volume 59, Number 2, July 2019

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

From the Editor's desk

Dr Trace Ollis, on the road from Europe and the UK

Jack Kerouac said on travel 'nothing behind me, everything ahead of me, as it ever is so on the road'.

I find myself writing the editorial in Regensburg, Germany. I am away on academic study leave and have attended several conferences, first in England and now in Europe. I have met so many people who are committed to adult education, who know the power and importance of adult education to transform learners' lives. So, this editorial will focus on some of the papers I've seen and heard and other notable issues of relevance to the readership of AJAL as I've been travelling around.

I was in the UK in the time of Brexit and the election of the new Prime Minister Boris Johnson. Surprisingly, I have not met anyone who seems keen on the idea of their new Prime Minister, and lament that only approximately 130,000 members of the Tory Party are able to have a say in who will be their country's new Prime Minister. It raises fundamental questions about democratic systems of government and governance. The implications for the United Kingdom and the European Union are wide ranging because of their failure to negotiate a palatable deal for Brexit.

I attended the annual conference for research and education (ACRE) at Edgehill University in Ormskirk, Lancashire, surrounded by the most beautiful gardens. Jan McArthur from Lancaster University gave

a keynote on Higher Education titled 'Towards a Moral University: Critical theory, social justice and a commitment to the vicissitudes of human fate and the moral university'. Using critical theory, notably in the work of Adorno and Horkeimer, she argued against accepting the current state of the neoliberal university, with its focus on regulating academic research, and limiting academics' freedom to pursue critical academic work.

I saw several inspiring papers but one notable paper, delivered by Claire Woodhouse and Laura Nicholson, was on the professional development of teaching assistants. They argued for professional learning that was informed by critical pedagogy one which encouraged these workers/ learners to form a 'community of practice' (Lave, & Wenger, 1991). This would enable them to build their practice by forging a learning community.

In Germany, I attended the Research Working and Learning conference 11 in Giessen Germany. This is a large biannual international conference which focusses on adult learning and work, in informal and formal settings in workplaces and communities and in industry. One of the keynotes was given by Professor Henning Patzold, titled Learning and Decision making in a Post Truth Era. This salient presentation raised many questions regarding the current technological revolution that we find ourselves in this 'contemporary condition of work', where we are bombarded with so much information, where knowledge is accessible at our fingertips through the new technologies and social media. Yet we also find ourselves incredibly time poor and unable to make time for critical engagement and at times uncomfortable conversations about issues that affect the work we do as educators.

It has been an interesting few weeks that I have enjoyed immensely. After learning so much and meeting educators from around the world doing great things in education theory and practice, I return to an 'on the road' theme with a final quote from Jack Kerouac pondering about travel, 'What would be in store for me in the direction I did not take?'

In this current issue of AJAL we have papers that cross the breadth and scope of adult learning in Australia and elsewhere, focussing on pedagogy and practice in spaces and places where adult learning occurs. In Higher Education, the professional learning of engineers, adult learning in the online learning environment and two articles on the importance of learning for people with disabilities – one through a

horse-riding education program and the other a university program for older learners with disabilities.

Cathy Stone and ***Matthew Springer's*** paper *Interactivity, connectedness and teacher-presence: Engaging and retaining students online* looks at the importance of teacher presence in the online learning environment. In an environment of adult education where courses are increasingly being delivered online, they argued for greater teacher presence in the learning process.

Sarah Gat, Margalit Pade and Michal Avrech Bar's paper focusses on adult learning in Israel titled *A picture paints a thousand words: Collage-making in higher education problem-based learning*. This paper explores using creative pedagogies in the classroom focussing on collage-making in order to engage students in deep level learning.

Clayton Mullen and ***Yohannes Mariam's*** paper *Adult learning: Barriers and enablers to advancement in Canadian power engineering* uses quantitative research methodology to uncover the impediments and enablers to professional learning for engineers.

Anh Nguyet Diep, Celine Cocquyt, Chang Zhu, Maurice De Greef, Minh Hien Vo and ***Tom Vanwing*** in their paper *Adult learners' needs in online and blended learning viewed through the lens of existence, relatedness and growth (ERG) theory* use ERG theory as a framework to support adult learners to optimally perform in learning and to sustain their motivation.

Rob Townsend and ***Michelle Hood*** explore the importance of education programs for adults with disabilities through horse riding in their paper *Horse talk: Equine based learning programs and their engagement with individuals*. The paper uncovers the skill development of the participants, but also the social and emotional benefits for people with disabilities through their interaction with other learners in the program, affirming what we know about the importance of adult learning being relational and embedded in our interactions with other people.

Marianna Müller de Morais and ***Lucia Rapsová's*** paper titled *Psychological bases of developing social competences of seniors with disability* explores the benefits of adult learning for older people with disabilities through a university enabling program.

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Interactivity, connectedness and 'teacher-presence': Engaging and retaining students online

Cathy Stone
University of Newcastle, Australia

Matthew Springer
University of Tasmania

An increasing number of students entering Australian higher education are choosing to study in an online mode. Attrition rates for online students are considerably higher than for students studying primarily on-campus, with evidence suggesting that the isolation of online study combined with the challenges of technology, academic expectations and pressure from other areas of students' lives, are significant contributors to this. However, there is also evidence to indicate that a supportive and engaging online teaching and learning environment, can help to mitigate against these difficulties and lead to increased student retention. This paper outlines the findings from a recent study with 16 universities, which demonstrated the importance of online 'teacher presence', combined with engaging, inclusive and interactive design, content and delivery. One example is provided of changes implemented in an online unit of study at a regional Australian university, in response to these findings, with positive effects on student engagement. Such changes at the individual unit level can indeed

make a positive difference on a small scale; however, institutional commitment to improving the quality of online education is needed to extend such successes to the broader online student population.

Keywords: *student engagement, online learning, distance education*

Introduction

The number of external students studying online in Australian higher education (HE) has been growing steadily each year, with nearly a quarter of commencing domestic students now choosing to enrol in an external, online mode (Australian Department of Education and Training [DET], 2017a). It is concerning, however, that retention and completion rates for external/online students are at least 20 per cent lower than in face-to-face study (Greenland & Moore, 2014; Stone, O'Shea, May, Delahunty, & Partington, 2016), with a recent Australian HE Standards Panel (HESP) Discussion Paper (DET, 2017b) reporting that external students are 2.5 times more likely than on-campus students to withdraw without a qualification.

Beginning with an overview of the pertinent literature, this paper describes and outlines the findings from a research study that investigated the perspective of higher education practitioners on ways to improve outcomes for online learners. The paper concludes with a case example of how these findings have influenced changes within an Information Communication and Technology (ICT) Project Management unit, at one of the regional Australian universities that participated in the research.

Overview of the literature

Along with the continuing growth in online study, there has been an increasing amount of research into the online HE experience, particularly in relation to mature-age and part-time students, who are more strongly represented in online than face-to-face studies. Also strongly represented within the undergraduate online cohort, are students from the Australian Government-identified equity categories of: low socio-economic status (SES) backgrounds; regional and remote

areas; students with disability; and Aboriginal and Torres Strait Islander (Indigenous) students (Stone, 2017).

For students from lower SES backgrounds, studying online can alleviate both financial and time burdens, allowing students to continue working and/or caring for families (Michael, 2012; Shah, Goode, West, & Clark, 2014; Stone et al., 2016). For those from regional and remote areas in Australia (Cardak, Brett, Bowden, Vecci, Barry, Bahtsevanoglou, & McAllister, 2017), online education plays a role in 'enabling regional students to access higher education while remaining in their communities' (Regional Universities Network, 2017). Online study has also been shown to be 'a preferred way to access higher education' (Kent, 2015, p. 2) for students with disability; while for Indigenous students who have experienced decades of educational disadvantage (Behrendt, Larkin, Griew, & Kelly, 2012) studying online has the potential to assist those who are 'juggling family life, community responsibilities and financial issues of economic disadvantage while pursuing higher education degrees' (Smith, Trinidad, & Larkin, 2015, p. 23).

Certainly, there are many inherent challenges, as well as benefits, in studying successfully online. Understanding e-learning technology, technical problems, feelings of isolation, lack of interaction with tutors and other students, problems with instructional materials and students' own difficulties with time management, have been shown to be key issues for online students (Ilgaz, & Gülbahar, 2015; Yoo, & Huang, 2013), while other family and work responsibilities also appear to play a significant role in online student attrition (Moore, & Greenland, 2017; Müller, 2008; Park, & Choi, 2009). Despite such challenges, online study can provide real and rewarding opportunities for many students who may not otherwise have been able to undertake HE studies successfully; such opportunities may include improvements in employment prospects and the ability to change careers, as well as an increase in confidence and self-esteem (Stone, & O'Shea, 2019). Additionally, as studies of student diversity have shown (Devlin, 2013a; O'Shea, May, Stone, & Delahunty, 2017; Signor, & Moore, 2014), these students bring with them a unique set of skills and experience that add value to the learning experience for themselves and others. 'This diversity can enrich online programs when mature age students are encouraged to utilise and share their knowledge and experiences with peers and educators' (Signor, & Moore, 2014, p. 312).

There is also a weight of evidence to suggest that institutional policies and practices can do much to alleviate the challenges facing online students. Salmon (2014), for example, believes that universities need to develop clear institutional policies and strategies for online education to ensure that academics are equipped to teach online; that appropriate digital resources are both available and understood; and that students and staff are well supported in this new and often unfamiliar environment. Parsell's (2014, p. 22) 'Standards for Online Education' stress the importance of institutional support for staff 'in their online teaching with quality professional development, resourcing and technical support' as well as support for online education at an institutional level more broadly, 'through the provision of quality leadership, infrastructure and evaluation'. More recently, Moore and Greenland (2017, p. 57) make a strong case for greater institutional recognition of the 'fundamental differences between on-campus and online learners' including the provision of 'appropriate flexibility' around assessment dates and scheduled exams. Their research showed 'employment challenges [to be] the major cause of online student attrition' with many students forsaking their studies when exams and due dates clashed with work commitments.

Much discussion in the literature refers to the importance of engaging online students in an interactive learning environment, both synchronously and asynchronously, with strong 'teacher-presence' to encourage interactivity in discussion boards, blogs and other media (Boton, & Gregory, 2015; Canty, Goldberg, Ziebell, & Ceperkovic, 2015; Kuiper, Solomonides, & Hardy, 2015; Oh, & Kim, 2016; Verenikina, Jones, & Delahunty, 2017; Vincenzes, & Drew, 2017). For example, Verenikina et al. (2017, p. 27) refer to the importance of 'lecturers' presence, expertise and commitment to ensuring quality learning takes place'. When teachers take the trouble to connect with online students through such means as introductions, welcome activities and/or videos when a course begins, followed by active facilitation of discussion fora, ensuring that discussion progresses constructively towards meeting learning outcomes, as well as providing prompt feedback on students' contributions and assessment tasks, students are assured that their lecturer is 'present', interested in and supportive of their learning. Developing and maintaining a strong teacher-presence can be challenging however for teaching staff, given that online students

are likely to engage in study outside of 'normal' campus hours, with implications for institutional expectations and support of online teachers (Stone, 2017).

Hand-in-hand with teacher-presence goes 'the importance of using multimedia and of choosing formats and content that represent the students' experience' (Devlin, & McKay, 2016, p. 98). Other studies indicate that online courses must be designed for 'active participation and interaction' (Park, & Choi, 2009, p. 215); with academic and technical support embedded within the curriculum, 'taking into account the nature and diversity of the cohort and their particular needs when designing the unit' (Kuiper et al., 2015, p. 243).

The research discussed in the following section has similarly revealed that a strong and engaging teacher-presence, combined with engaging and interactive course design, can be a powerful combination in enhancing the online student experience.

Outline of the research

Background and aims

Through 2016 and early 2017, a research study was conducted under the auspices of two Australian institutions, the National Centre for Student Equity in Higher Education (NCSEHE) at Curtin University, and the Centre of Excellence for Equity in Higher Education (CEEHE) at the University of Newcastle. This research, funded by the Australian Government through the NCSEHE, aimed to seek the combined wisdom of practitioners directly involved in online education, on ways to most effectively engage, teach and support online students. Qualitative interviews were conducted with 151 members of staff, across 16 HE institutions; 15 were Australian metropolitan and regional universities, while the sixteenth was the Open University UK. From the findings, a set of national guidelines for improving student outcomes in online learning has been developed (Stone, 2017).

Methodology

Following ethics approval from the relevant universities, a purposeful approach to sampling was taken (Cresswell, 2012) in order to recruit

those with experience and knowledge of online education and online student needs. Hence, invitations to participate were emailed to those academic and professional staff who had been identified by their universities as being involved in online education delivery and/or support of online students. A snowballing approach (Babbie, 2001) was then used, with staff being encouraged to distribute the invitation to others; 70 participants were in academic and teaching roles, 75 in professional roles and six were at senior executive levels. Professional roles included library services, learning design, student support, retention, engagement and success, language and learning, equity and diversity, disability services, careers, training and development, planning and data analytics. Teaching staff were drawn from different disciplines, schools and faculties across each institution.

Interviews were conducted face-to-face and occasionally by phone or video-link, focussing on discussion of strategies that participants and/or others in their institution, were using to engage and support online students. Information about the impact of these on student retention and academic success (supported by evaluation data where available) was sought, along with participants' views on what else institutions need to do, to better engage, support and retain online students. An iterative approach to data analysis was used, involving a repetitive, cyclical approach of continually dipping between the interview and survey data. Emerging themes were checked against the data, which in turn led to further development of each theme as well as the emergence of new themes (Srivastava & Hopwood, 2009). Themes were then coded using NVivo.

Findings

A number of findings emerged from this research. The first of these concerned the crucial need to develop whole-of-institution strategies to improve the quality and consistency of online design, delivery and support – ensuring that it is part of the institution's core business. This finding effectively underpins the others, which can be summarised as:

- the importance of knowing, understanding and valuing the online student cohort, including recognising the skills, knowledge and strengths that they bring with them to their studies;
- intervening early to help incoming and first year students prepare for university study and connect with the university;

- communicating meaningfully and often with students, both within the online learning environment through teacher–student communication and more broadly through relevant and personalised institutional communication;
- course design that is specific to online learning, facilitating student connection and interaction with their teacher, other students and the course material, while also embedding academic and technology support; and
- using the analysis of data on student demographics and student behaviour within the learning management system (usually referred to as 'learning analytics') to inform institutional communications, ensuring they are appropriately timed and targeted.

These findings informed the development of ten guidelines for improving student outcomes in online learning (Stone, 2017, pp. 6–12).

The following section highlights the findings that particularly relate to teacher-presence and online course design. They are however inevitably connected to the other findings, so it is not intended, nor would it be helpful, to isolate any of these findings from each other. Therefore, reference is made to other relevant aspects of the findings throughout the discussion.

The vital role of 'teacher-presence'

The crucial role of the online teacher or tutor in enhancing online student engagement was mentioned more often in the interviews than any other single factor. It was generally agreed by participants that teaching online requires a different approach and a different set of skills than when teaching face-to-face. In the face-to-face environment, teachers and students can see each other and communicate with each other in real time, with teachers delivering lectures in person and/or generating in-class discussions and activities. However, within the online teaching and learning space, communication is largely asynchronous, via virtual discussion boards or other fora, with course content provided digitally through a learning management system (LMS) and teachers setting relevant digital activities to aid learning, such as online quizzes and discussion board postings. Teachers must therefore be highly attentive in this virtual learning space, in which

the usual boundaries of time and place are much less clearly defined. Instead, for instance, of the certainty of delivering a one-hour lecture in a particular lecture theatre at a fixed time on a certain day, an online lecturer or tutor has to be constantly aware that students will be accessing the learning content and engaging in the relevant discussion and activities at all different times of the day and night, across any or all days of the week.

It was stressed by participants that managing this very different learning environment successfully can be challenging. Participants describing the importance of 'creating your online presence'; providing 'regular and engaged and interested interventions'; 'a sense of personal contact'; ensuring that 'the student feels cared for and feels they have someone to go to'; that 'the online environment [is] a welcoming space'; and that each student has 'a personal touch point, so that they're not just a number'.

One experienced online teacher described how essential it is for students to:

> *… have an impression of there being someone on the other end of the system listening to them. So, communication and feedback, communication and feedback, communication … you can't communicate enough with online students.*
>
> (Senior Lecturer, Institution K).

The relationship with the online tutor was seen as key to building a sense of belonging to a learning community.

> *If you have great content and a poor tutor, student satisfaction is low. If you have great content, great tutor – high satisfaction… it comes back to that community of learning.*
>
> (Program Coordinator, Institution G)

Other research with online students has identified student isolation as a significant factor in attrition (Knightley, 2007; O'Shea, Stone, & Delahunty, 2015), made particularly acute when students experience 'little or no feedback, no discussion and "don't bother me" tutors' (O'Shea et al., 2015, p. 49). Not only are online students physically and, in many cases, geographically isolated from university campuses, they can also feel socially and pedagogically isolated through insufficient communication within the learning community. The negative

implications of a lack of responsiveness by online teachers similarly emerged in this research.

> *Where there's no responses to emails and no responses to discussion forums … the attrition rate's higher and the students are really unhappy.*
>
> (Unit Coordinator, Institution Q)

Participants saw a clear link between a strong teacher-presence and student retention.

> *They [tutors] are very consistent communicating – every day, every week and … this particular unit has a retention rate well into the 90 per cent.*
>
> (Faculty Dean, Institution G)

A Student Retention Coordinator spoke about a 'dramatic turnaround' in retention figures for a particular unit due to a new tutor taking over, who:

> *was a lot more engaging with the students … being a really open contact for students and really engaging with them in the conversations … and timely feedback.*
>
> (Student Retention Coordinator, Institution P)

Many participants stressed the difference in communication demands for online teaching compared with face-to-face teaching:

> *The engagement demands are completely different, the reliance of students on the instructor is much more intensive – basically you're it. The instructor is everything to the students.*
>
> (Course Coordinator, Institution M)

Other research supports the importance of 'interactive and connected learning' (Devlin, & McKay, 2016, p. 99) and talks of 'the fundamental role of interaction in bringing an online learning community into existence and for building and maintaining interpersonal relationships' (Delahunty, Verenikina, & Jones, 2014, p. 253). Hence, teachers need sufficient time to develop and maintain a regular presence and to build relationships. The insufficiency of allocated time to adequately meet the needs of students was frustrating for many.

> *It's very time-consuming and tutors aren't paid for it for that amount of time … we're not supposed to spend a lot of time on it … you're always chasing your tail because there's just not enough time.*
>
> (Lecturer, Institution K)

Both sessional and full-time academics talked about putting in extra hours, over and above their paid hours or workload allocation, in order to provide consistent interactivity and responsiveness, such as in forum discussions.

> *We're on duty seven days a week which I know we're not supposed to but we do because it's the only way that works is that if you keep the ball rolling. If they think "Okay, it's Friday night, I'm not going to get a reply till Monday" then they lose interest and they're all working so that's the time when most of them do study.*
>
> (Unit Coordinator, Institution P)

This ties directly into another of the key findings discussed previously – that of institutional responsibility for ensuring a 'core business' approach to online teaching and learning, in which workload is realistically allocated for online teaching. Many participants lamented the lack of formal institutional expectations, guidelines and processes to support online teaching, including training, mentoring and ongoing staff development. It also connects with the finding related to the impact of course design, which, when appropriately designed for online delivery, can serve to further enhance interactivity, connecting students more effectively with teachers and other students. The following section explores this further.

Content, curriculum and delivery – design for online

Participants made it clear that online course design requires a different approach from the outset. As described by a lecturer at Institution L, institutions need to be 'thinking about distance learning or online learning as a different animal to the face-to-face course … and designed completely differently for that mode of delivery'. This perspective is consistent with the views of many online students, illustrated by student quotes such as: 'What works in person is not the same as online … I

thought it would just be more, sort of, more tailor made for it than what it is' (O'Shea et al., 2015, p. 52).

Issues such as the interface on which content is delivered needing to be easy to navigate and as intuitive as possible were raised.

> *It's just got to work. It can't take time; it's got to be easily navigated, it's got to talk to me quickly and it's just got to be accessible.*
>
> (Student Support Project Coordinator, Institution F)

Many spoke about the pitfalls of simply uploading materials that have been designed for face-to-face students, without considering the implications for the online cohort.

> *If we're going to move more online, you don't just tape yourself for an hour and put it on there; that's terrible.*
>
> (Teaching & Learning Centre Director, Institution C)

As explained by a unit coordinator at Institution H, 'you cannot keep someone engaged for two hours online'. Others mentioned the disengaging experience for students of being expected to read and digest lengthy text documents which have been simply copied and pasted online. In the words of an equity officer at Institution Q, 'that whole thing of scrolling through … the tools are there now so there should be no excuse to this scrolling business'. Such comments are supported by other evidence (for example, Akarasriworn, Korkmaz, Ku, Luebeck, & Mayes, 2011; Devlin, 2013b; Parsell, 2014) that uploading content designed for face-to-face teaching, rather than material designed specifically for online, fails to provide an engaging learning experience.

There was also a recognition amongst participants that this should not be the responsibility of simply the individual course coordinator and tutors, but that it needs to be viewed as an institutional responsibility, with institutions developing 'a quality agenda' in which online courses 'are actually specifically designed for the online students' and not 'a retro-fit of an on-campus experience' (Senior Executive, Institution E).

Participants described many different ways in which a course can be designed to engage and connect students with their teacher, other students and the course material. It was repeatedly stressed that

effective online course design needs to include activities and assessment tasks that are not only directly related to learning outcomes, but that are also designed to engage students in communication and collaboration with each other through both synchronous and asynchronous means, without unnecessary technological complexity. Some of the many examples given by participants included: the use of blogs that 'are visible to all the other students so they're actually able to view other people's work and comment and have a bit of a discussion around that' (Unit Coordinator, Institution A); 'clear, explicit tasks … ways that peers connect with each other' (Teaching and Learning Manager, Institution M); 'bite-sized opportunities to engage, to learn, to be tested' (Senior Executive, Institution P); 'animated video where students can look at the video for three minutes and then go and answer the questions' (Unit Coordinator, Institution O); and 'a trickle feed of tasks … so it's step-by-step, a scaffolded start' (Senior Lecturer, Institution L).

Those with experience of working with students with disability, such as equity officers, disability advisers and a number of academics, stressed the need to 'provide online materials in multiple ways' (Senior Academic, Institution H) to improve accessibility and meet the needs of as many students as possible; similarly, the importance of truly accessible design.

> *If the unit is designed with universal access in mind … from a very grass root level and when the teaching module is being designed … a huge bulk of your challenges are addressed.*
>
> (Disability Advisor, Institution P)

There was a recognition that course design can positively impact on the meaningful participation of students from diverse backgrounds, if the course is designed and delivered to be as inclusive as possible.

> *Indigenous students… have basically said "Yes, we want Indigenous content in our courses but, more important are probably spaces; spaces in the curriculum where we can be heard and where we can hear other voices".*
>
> (Team Leader, Training, Institution N)

The issue of accessibility and inclusivity links to another of the findings from this research, that is, the importance of institutions' knowing,

understanding and valuing the diversity of their online student cohort. With this understanding comes the possibility of designing tasks, projects and assessments that are relevant to students from different backgrounds and experiences. There is evidence that this type of applied learning design, for example, 'links university study to the workplace more effectively and facilitates the development of graduate attributes' (Downing, 2015, p.vi).

Bringing it together

In the view of the participants in this study, a strong teacher-presence, in combination with effective and engaging online course design, led directly to stronger student engagement with the learning materials, their teachers and fellow-students; and that ultimately, this led to higher completion and retention rates. These findings align closely with aspects of Parsell's Standards for Online Education (2014, pp. 21–22), which specify that curriculum materials, learning activities and assessment tasks need to be 'aligned, available and engaging, [provided by] a variety of media … and appropriate technologies', also that students should be 'provided with opportunities to interact with staff … to be active participants in learning-focused interactions'.

Participants described many ways of achieving this, such as 'there should be a mixture … you have your learning in bite-sized chunks …' (Program Coordinator, Institution G); 'online synchronous sessions … and … asynchronous discussion spaces … questions you ask to get them thinking, to get them engaging in discussion with each other' (Lecturer, Institution O); and 'teacher presence in the blogs and discussion boards, responding to questions and comments …' (Online Curriculum Manager, Institution D). One academic recalled these words of a graduating student, 'the only thing that kept me going and the main reason why I am here tonight, was the weekly "Collaborate" [synchronous video] sessions' (Program Convenor, Institution G).

It was stressed by participants that building collaboration and interaction amongst students can be successfully achieved online, using creative approaches in developing collaborative exercises and assessment activities, such as those discussed above. One participant mentioned the importance of 'an interactive room … for the students to dip in and out of (Unit Coordinator, Institution H), with another explaining that, through such activities, it is possible to 'create really

very engaging environments for online students' (Senior Executive, Teaching & Learning, Institution P). In the words of Signor and Moore (2014, p. 312), the online environment 'has the potential to foster engagement and active learning beyond subject matter that can be rich and rewarding not only for the students but for the educators as well'.

Institutional barriers however can make this more difficult, such as large class sizes and insufficient time allocated to teaching, which can impede interaction and communication. 'Classes with 300 students with one single lecturer … it does not work' (Student Retention Project Manager, Institution N). In contrast, in an example where online class sizes were kept to no more than 30, the experience was very different. 'Having those small tutorial groups helps because they create a little community' (Senior Executive, Institution B). The need for a whole-of-institution approach towards online education, mentioned previously, which may include setting class sizes to more realistic figures, in consultation with teaching staff in Schools and Faculties, is relevant here.

So far, this paper has discussed in some depth two of the seven key findings from the research project under discussion; namely, the importance of building a strong teacher-presence, along with the development of interactive, engaging online course design. It has also mentioned another of the findings, that of an institutional 'core business' approach towards online learning, that supports an understanding of the online student cohort and implementation of appropriate learning and teaching standards.

The next section provides a practical example of how these findings influenced improvements in teacher-presence and course design within a unit of study at one of the regional Australian universities that participated in this research. In response to the findings that had emerged from the research, the lecturer of this unit implemented a number of changes; these are discussed below, along with the subsequent effects on student engagement and retention.

Putting it into practice

The university's participation in the research described in this paper, and the subsequent findings that emerged, provided the impetus for the lecturer of an ICT Project Management unit to update the unit's contents and the way it was delivered. The unit had been delivered in

first semester and summer school each year since 2014, as part of an ICT degree program. Apart from two face-to-face workshops, held over two separate days, the remainder of the unit content was delivered online. This content material included recorded lectures, readings and additional material organised into modules, plus compulsory module quizzes which assess that content. There were also two major assessment tasks – one on project management in entrepreneurship and one work integrated learning task, where students visit real businesses to identify their needs for ICT projects. While this was not a low-scoring unit in terms of student satisfaction, and had in fact scored relatively well in 2016, nevertheless the changes made led to a substantial improvement in student satisfaction for 2017.

Changes implemented

Up to and including the 2016 delivery of the online unit, the audio from the previous semester's 50-minute face-to-face lectures (from the on-campus delivery of the same unit) was recorded and turned into narrated PowerPoint slides. These were uploaded in modules as the online lecture content. An online summative quiz was used to assess the students' familiarity with the lecture content.

In the light of the findings from the research, a number of changes were made for the 2017 delivery of the unit. To begin with, there were changes made to the unit's design, making it more appropriate for online delivery. Each of the 13 lectures was broken down into three shorter videos, each one no more than eight-minutes long; these were recorded by the lecturer via a computer webcam. Additional supporting, but very short, videos, readings and activities associated with each lecture fragment were added to the LMS to provide a richer context, beyond the delivery of the lecture content.

Additionally, the importance of understanding the demographic makeup of the students in this unit was recognised, and an analysis of this was sought from the university's data team. With nearly a third of students coming from language backgrounds other than English, it was realised that steps needed to be taken to make the video content more accessible. To achieve this accessibility, closed captions were added to the recordings.

The next step was to write online quizzes for this material. Instead of writing a single large quiz for the end of each module, formative quizzes were created for each of the lecture fragments, additional videos and other materials. By completing these unassessed quizzes, students could determine their understanding of each topic. At the end of each module, students were presented with the module quiz that was assessed. To help manage the workload associated with creating these quizzes, the practice quizzes from the entire module were gathered into a question bank, and the module quiz was randomly drawn from those existing questions.

As part of building an engaging and supportive online environment with strong teacher presence, a commitment was made by the lecturer to answer student emails as immediately as possible. For example, in the case of the 2017 summer school class, which had only 32 students, it was possible for the lecturer to answer emails very promptly – many times within a few minutes of their being sent. If sent late at night or when the lecturer was otherwise not immediately available, they were replied to as soon as realistically feasible. The lecturer also implemented a system of personalised interventions with students, to help them to stay engaged and on-track. The LMS being used for this unit had the ability to identify students who were struggling and then to automate personalised messages to them. The lecturer made use of this technology to identify and reach out to students at risk with appropriate, personal messages of support.

Impacts of the changes

The changes adopted in this unit resulted in substantial qualitative and quantitative feedback under the university's student feedback process, which consisted of a student satisfaction survey distributed at the end of the unit. A request to complete the survey was sent to every student who participated in the online unit either during summer school or first semester. Table 1 below shows the survey questions and the overall impact of the changes to the unit, with improvements in Survey Percentage Agreement for every measured criterion between the 2016 and 2017 deliveries of the unit.

Table 1: Student Unit Evaluation Pre- and Post- Implementation of Changes

Student Unit Evaluation Survey Response Rate	2016	2017
No of Survey Requests	65	77
No of Survey Responses	37	36
Response Rate %	56.9%	46.8%
Student Unit Evaluation Survey Percentage Agreement		
The learning outcomes in this unit are clearly identified.	91.9%	97.2%
The learning experiences in this unit help me to achieve the learning outcomes.	89.2%	97.2%
The learning resources in this unit help me to achieve the learning outcomes.	91.9%	100.0%
The assessment tasks in this unit evaluate my achievement of the learning outcomes.	83.8%	91.7%
Feedback on my work in this unit helps me to achieve the learning outcomes.	89.2%	97.2%
The workload in this unit is appropriate to the achievement of the learning outcomes.	83.3%	100.0%
The quality of teaching in this unit helps me to achieve the learning outcomes.	89.2%	97.2%
I am motivated to achieve the learning outcomes in this unit.	86.5%	91.7%
I make best use of the learning experiences in this unit.	91.9%	97.2%
I think about how I can learn more effectively in this unit.	86.5%	88.6%
Overall, I am satisfied with this unit.	83.8%	97.2%
Overall Agreement %	**87.9%**	**95.9%**

Within the survey, students also had the opportunity to provide comments. The following quotes indicate students' appreciation of the shorter videos that delivered the lecture content:

> *Excellent use of 'broken-up' online modules, with a series of short videos.*
>
> *Online lectures are very easy to get through without losing focus.*
>
> *A combination of small videos and quizzes, are an excellent way to learn content without falling asleep.*

Students from language backgrounds other than English particularly loved the captioned videos and started requesting them in other units.

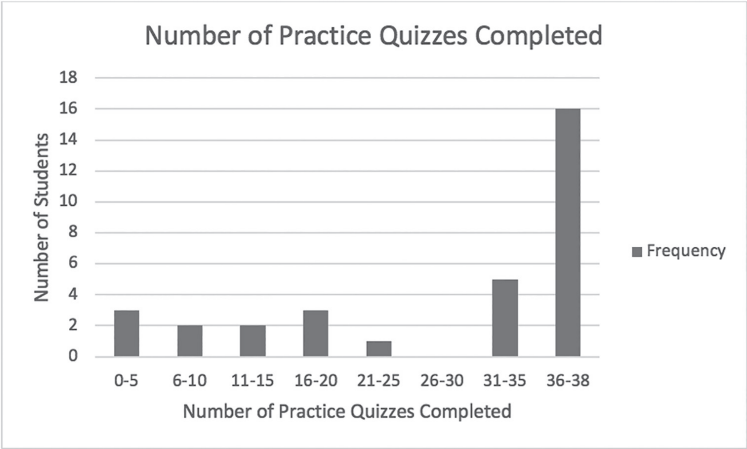
The use of formative quizzes also received excellent feedback.

> *Every module [quiz] encourage[s] us finished (-sic) the unit throughout the time line. And the quizzes help us understand the content of this unit.*

Despite the 38 quizzes being non-assessable, both the feedback and the actual usage of the quizzes indicated that students appreciated the curated sources of information that were provided for them in the modules.

Table 2 below shows the high level of student engagement with these practice quizzes.

Table 2– Student engagement with Practice Quizzes



Feedback on the prompt responsiveness of the lecturer to student emails was also very positive:

> *Despite the lack of physical lectures, questions were still very easy to ask, as [the lecturer] responds to email far more responsively then (-sic) the majority of all … staff and services.*

A key difference was that the lecturer was available to the students on *their* timetable, rather than only during the normal working hours of the university. As a result, a strong rapport developed between the lecturer and the students. A side benefit to this closer interaction and rapport was the increased number of students referred to the university's counselling and support services. The LMS technology, through its clear display of student marks across all assessments – both summative and formative – across the unit, allowed the lecturer to see which students were passing, failing and missing assessments. This made it very easy to identify and contact struggling students. Because of the clearly displayed statistics, not only did the lecturer find the workload of monitoring and supporting students more manageable, but the interactions with the students helped a number of them to get 'back on track' with their studies.

This one example serves to illustrate in a practical sense some of the measures that may be possible for individual lecturers to take to improve student engagement and satisfaction within online learning. This particular lecturer focussed on building a stronger teacher-presence through increased responsiveness to students, including personalised interventions for students who appeared to be less engaged or struggling; and also on improving the design of the unit through shorter, more engaging videos with closed captions, complemented by short activities and quizzes to further strengthen engagement and consolidate student learning. There was clear improvement in student satisfaction from the previous year in response to these changes.

Conclusion

The research findings presented in this paper demonstrate that, for online students, the importance of a strong teacher presence, along with course design that is specific to and appropriate for online delivery, cannot be underestimated. Through the combination of regular and prompt communication between teacher and students, along with

interactive and engaging course design, online students can be more effectively engaged, supported and encouraged to persist within the online learning environment. The example of changes made to one particular unit in response to these findings provides a small illustration of proactive approaches that are possible for individual lecturers and tutors to implement.

However, as positive as this undoubtedly was for this group of students, for such outcomes to be both scalable and sustainable, significant institutional commitment and support is required. The valuable and time-consuming work being done by dedicated teachers to improve online engagement amongst their own students, needs to be underpinned by a broader online strategy in which quality standards for online development, delivery and student support are established, monitored and continuously improved. As a priority, those who teach and support online students need to be given sufficient time, resources, training and ongoing support, to ensure that all students receive an equitable and engaging online learning experience. Only then can the quality and consistency of online learning across each institution begin to be assured.

References

Akarasriworn, C., Korkmaz, O., Ku, H., Luebeck, J., & Mayes, R. (2011). Themes and strategies for transformative online instruction: a review of literature and practice. *Quarterly Review of Distance Education, 12*(3), 151+.

Babbie E. (2001). *The Practice of Social Research.* Belmont: Wadsworth Thomson.

Behrendt, L., Larkin, S., Griew, R., & Kelly, P. (2012). *Review of Higher Education Access and Outcomes for Aboriginal and Torres Strait Islander People: Final Report. Australian Government.* Retrieved from https://docs.education.gov.au/system/files/doc/other/heaccessandoutcomesforaboriginalandtorresstraitislanderfinalreport.pdf

Boton, E. C., & Gregory, S. (2015). Minimizing Attrition in Online Degree Courses. *Journal of Technology and Human Interaction, 5*(4), 62-90. Retrieved from https://www.thejeo.com/archive/archive/2015_121/botongregorypdf

Canty, A. J., Goldberg, L. R., Ziebell, J. M., & Ceperkovic, H. (2015). Meeting the Challenge of designing and delivering an entry level unit of study to engage and inspire learners in online neuroscience education in a Bachelor of Dementia Care. Paper presented at the ICERI Proceedings, 18–20 November, Seville, Spain. Retrieved from https://library.iated.org/view/CANTY2015MEE

Cardak, B., Brett, M., Bowden, M., Vecci, J., Barry, P., Bahtsevanoglou, J., & McAllister, R. (2017). *Regional Student Participation and Migration: Analysis of factors influencing regional student participation and internal migration in Australian higher education*. Retrieved from https://www.ncsehe.edu.au/wp-content/uploads/2017/02/Regional-Student-Participation-and-Migration-20170227-Final.pdf

Creswell, J. W. (2012). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research (4th ed.)*. Boston, MA: Pearson Education.

Delahunty, J., Verenikina, I., & Jones, P. (2014). Socio-emotional connections: identity, belonging and learning in online interactions. A literature review. *Technology, Pedagogy and Education, 23,* 243-265. Retrieved from https://doi.org/10.1080/1475939X.2013.813405

DET. (2017a). Higher Education Statistics – Student Data. Canberra Retrieved from https://www.education.gov.au/student-data

DET. (2017b). Improving retention, completion and success in higher education. Canberra: Australian Government Retrieved from https://docs.education.gov.au/node/44121.

Devlin, M. (2013a). Bridging socio-cultural incongruity: conceptualising the success of students from low socio-economic status backgrounds in Australian higher education. *Studies in Higher Education, 38*(6), 939-949. Retrieved from https://doi.org/10.1080/03075079.2011.613991

Devlin, M. (2013b). *eLearning Vision*. Retrieved from http://federation.edu.au/__data/assets/pdf_file/0020/159122/FedUni_eVision2014.pdf

Devlin, M., & McKay, J. (2016). Teaching students using technology: Facilitating success for students from low socioeconomic status backgrounds in Australian universities. *Australasian Journal of Educational Technology, 32*(1), 92–106. Retrieved from https://doi.org/10.14742/ajet.2053

Downing, J. (2015). Applied learning design in an online teacher-education course. (PhD), Murdoch University. Retrieved from http://researchrepository.murdoch.edu.au/id/eprint/30925/

Greenland, S. J., & Moore, C. (2014). Patterns of Student Enrolment and Attrition in Australian Open Access Online Education: A Preliminary Case Study. Open Praxis, 6(1), 45–54. Retrieved from https://doi.org/10.5944/openpraxis.6.1.95

Ilgaz, H., & Gülbahar, Y. (2015). A Snapshot of Online Learners: e-Readiness, e-Satisfaction and Expectations. *International Review of Research in Open and Distributed Learning, 16*(2), 171–187. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2117/3277

Kent, M. (2015). *Access and Barriers to Online Education for People with Disabilities*. Retrieved from https://www.ncsehe.edu.au/wp-content/

uploads/2016/05/Access-and-Barriers-to-Online-Education-for-People-with-Disabilities.pdf

Knightley, W. M. (2007). Adult learners online: students' experiences of learning online. *Australian Journal of Adult Learning, 47*(2), 264–287. Retrieved from https://files.eric.ed.gov/fulltext/EJ797581.pdf

Kuiper, A., Solomonides, I., & Hardy, L. (2015). Time on task in intensive modes of delivery. *Distance Education, 36*(2), 231–245. Retrieved from https://doi.org/10.1080/01587919.2015.1055058

Michael, K. (2012). Virtual classroom: reflections of online learning. *Campus-Wide Information Systems, 29*(3), 156–165. Retrieved from https://doi.org/10.1108/10650741211243175

Moore, C., & Greenland, S. J. (2017). Employment-driven Online Student Attrition and the Assessment Policy Divide: An Australian Open-access Higher Education Perspective. Journal of Open, *Flexible and Distance Learning, 21*(1), 52–62. Retrieved from https://files.eric.ed.gov/fulltext/EJ1148193.pdf

Müller, T. (2008). Persistence of Women in Online Degree-Competion Programs. *International Review of Research in Open and Distributed Learning, 9*(2), 1–18. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/455/1042

O'Shea, S., May, J., Stone, C., & Delahunty, J. (2017). *First-in-Family Students, University Experience and Family Life*. London: Palgrave MacMillan.

O'Shea, S., Stone, C., & Delahunty, J. (2015). "I 'feel' like I am at university even though I am online." Exploring how students narrate their engagement with higher education institutions in an online learning environment. *Distance Education, 36*(1), 41–58. Retrieved from https://doi.org/10.1080/01587919.2015.1019970

Oh, E. G., & Kim, H. S. (2016). Understanding Cognitive Engagement in Online Discussion: Use of a Scaffolded, Audio-based Argumentation Activity. *International Review of Research in Open and Distributed Learning, 17*(5), 28–48. Retrieved from http://www.irrodl.org/index.php/irrodl/article/view/2456

Park, J. H., & Choi, H. J. (2009). *Factors Influencing Adult Learners' Decision to Drop Out or Persist in Online Learning*. Educational Technology and Society, 12(4), 207–217. Retrieved from http://www.ifets.info/journals/12_4/18.pdf

Parsell, M. (2014). *Standards for Online Education, Final Report*. Retrieved from http://altf.org/wp-content/uploads/2016/08/Parsell_M_NTF_-report_2014.pdf

Regional Universities Network. (2017). *Facts and Figures on Regional Australia*. Retrieved from http://www.run.edu.au/resources/Regional%20Students.pdf

Salmon, G. (2014). Learning Innovation: A Framework for Transformation. *European Journal of Open, Distance and e-Learning, 17*(2), 219–235. Retrieved from https://doi.org/10.2478/eurodl-2014-0031

Shah, M., Goode, E., West, S., & Clark, H. (2014). Widening Participation in Higher Education through Online Enabling Education. *Widening Participation and Lifelong Learning, 16*(3), 36–57. Retrieved from https://doi.org/10.5456/WPLL.16.3.36

Signor, L., & Moore, C. (2014). Open Access in Higher Education–Strategies for Engaging Diverse Student Cohorts. Open Praxis, 6(3), 305–313. Retrieved from http://dx.doi.org/10.5944/openpraxis.6.3.132

Smith, J., Trinidad, S., & Larkin, S. (2015). Participation in higher education in Australia among underrepresented groups: What can we learn from the Higher Education Participation Program to better support Indigenous learners? *Learning Communities: International Journal of Learning in Social Contexts, Special Issue: Indigenous Pathways and Transitions into Higher Education* (17), 12–29. Retrieved from http://doi.org/10.18793/LCJ2015.17.02

Srivastava, P., & Hopwood, N. (2009). A practical iterative framework for qualitative data analysis. *International Journal of Qualitative Methods, 8*(1), 76–84. https://doi.org/10.1177/160940690900800107

Stone, C. (2017). *Opportunity through online learning: Improving student access, participation and success in higher education*. Equity Fellowship Final Report. The National Centre for Student Equity in Higher Education, Curtin University, Perth. Retrieved from https://www.ncsehe.edu.au/publications/opportunity-online-learning-improving-student-access-participation-success-higher-education/

Stone, C. & O'Shea, S. (2019). Older, online and first: Recommendations for retention and success. *Australasian Journal of Educational Technology, 35*(1), 57-69.

Stone, C., O'Shea, S., May, J., Delahunty, J., & Partington, Z. (2016). Opportunity through online learning: experiences of first-in-family students in online open-entry higher education. *Australian Journal of Adult Learning, 56*(2), 146–169. Retrieved from https://www.ajal.net.au/opportunity-through-online-learning-experiences-of-first-in-family-students-in-online-open-entry-higher-education/

Verenikina, I., Jones, P. T., & Delahunty, J. (2017). *The Guide to Fostering Asynchronous Online Discussion in Higher Education*. Retrieved from www.fold.org.au/docs/TheGuide_Final.pdf.

Vincenzes, K. A., & Drew, M. (2017). *Facilitating interactive relationships with students online. Distance Learning, 14*(4), 13–22. Retrieved from https://www.questia.com/magazine/1P4-2057946092/facilitating-interactive-relationships-with-students

Yoo, S. J., & Huang, W. D. (2013). Engaging Online Adult Learners in Higher Education: Motivational Factors Impacted by Gender, Age, and Prior Experiences. *The Journal of Continuing Higher Education, 61*(3), 151–164. Retrieved from http://dx.doi.org/10.1080/07377363.2013.836823

About the authors

Cathy Stone is an independent consultant and researcher in the field of higher education student equity, retention and success. She is a Conjoint Associate Professor in Social Work at the University of Newcastle, Australia and an Adjunct Fellow with the National Centre for Student Equity in Higher Education at Curtin University. Cathy has spent much of her career developing and managing student support and success strategies for both on-campus and online students. Her research and publications focus particularly on the experiences of mature-age, first-in-family and online students.

Matthew Springer is a lecturer in the Discipline of Information and Communication Technology (ICT) within the School of Technology, Environments and Design at the University of Tasmania. His major focus for the past several years has been teaching project management and business analysis to second year ICT students, and data management to first year students – both in Tasmania and in China. Matthew's research has centred upon tertiary curriculum development.

Contact details

Dr Cathy Stone
The University of Newcastle, Australia

Email: cathy.stone@newcastle.edu.au

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

A picture paints a thousand words: Collage-making in higher education problem-based learning

Sarah Gat
Margalit Pade
Michal Avrech Bar

Tel Aviv University

The purpose of the study was to examine the impact of implementing a creative art activity in a problem-based learning (PBL) course on occupational therapy (OT) students and their tutors. A qualitative-ethnographic study was conducted during 2016–2017. In one meeting of a PBL course, 126 first year OT undergraduate students were asked to create a collage reflecting the case study they chose, followed by a discussion of their experience. Thirty-four students and nine tutors participated in the study. Qualitative analysis was conducted using focus groups, semi-structured interviews, open questionnaires and observations. Findings of the qualitative analysis revealed four main categories: attachment to the client, change in the meeting's atmosphere, developing learning skills, and a creative art activity as a learning, treating and tutoring tool. Implementation of a creative art activity in a PBL course provided enrichment for students in the form of a learning and treatment tool and for tutors in the form of an instruction tool. This study sheds new light on active learning and

teaching, and offers some important insights regarding the use of creative art activities in higher education.

Keywords: *creativity, higher education, students, teaching, tutor*

Introduction

Contemporary literature on teaching techniques in higher education has dealt with the development of innovative teaching strategies in light of the criticism of traditional teaching methods (Pundak, & Rozner, 2008; White, Larson, Styles, Yuriev, Evans, Rangachari, & Eise, 2016). It is argued that traditional methods limit instruction to knowledge transfer only. As a result, they do not generate expected outcomes; for example, acquiring knowledge and promoting skills such as problem solving and understanding complex concepts. Furthermore, traditional instruction develops a negative attitude among students (Pundak, & Rozner, 2008). Consequently, other teaching strategies have been developed based on the conceptual theory of 'constructivism' emphasising the active nature of learning. Active learning has been defined as classes in which students should read, write, discuss, or engage in solving problems. Active learning places students in the centre of the lesson and regulates their learning, while the teacher becomes a guide and a co-creator of new meaning making (Alt, 2016; Gaspar, & Mabic, 2014; White et al, 2016). Problem-based learning (PBL) is one of the techniques that meets this definition (Prince, 2004). Creative teaching is also a valuable technique to promote student-centred teaching (Gibson, 2010) and creative art activities are a powerful teaching tool for adult learners (Simmons, & Daley's, 2013).

This paper presents a study incorporating these two methods and describes the implementation of a creative art activity as an active learning method in a PBL course. Additionally, it explores the experiences of occupational therapy (OT) students and their tutors while engaging in the new activity. Understanding the impact of creative art activities on OT students may contribute to the growing body of literature on active learning and teaching techniques for preparing health students for practice.

Problem-based learning in health professions education

PBL is a learner-centred approach that builds on real-life cases to increase the students' knowledge and understanding of the subject matter (Hung, 2015; Stern, & D'Amico, 2001). Problems, or cases (terms used interchangeably in the literature), are the cornerstone of PBL. They are based on authentic situations and provide the substance and content for tutorial sessions and influence the students' paths of self-directed learning (Stern, & D'Amico, 2001). The cases describe client's scenarios with diverse health conditions, and include psycho-social, economic, cultural, ethical and public health policy issues. This encourages students to deal with the total context of the client's health problems, including their interactions with the health care system (Hendricson, 1993; Schell, & Kaufman, 2015). For example, Daniel is a 5-year-old child with a Developmental Coordination Disorder (DCD). Daniel attends a regular kindergarten and refuses to participate in fine motor activities that involve painting, drawing and cutting. He does not take part in ball games with peers and prefers playing with younger children.

Students define their own learning objectives from the cases presented to them and engage in independent study before returning to discuss and refine the knowledge they acquired with the group (Halliwell, 2008; Hung, 2015). The groups are guided by a tutor and aim to challenge appropriate learning resources (Jung, Tryssenaar, & Wilkins, 2005). Today, PBL is a familiar and widely discussed instructional method in almost all disciplines in higher education due to its success in promoting students' higher order thinking and practical skills (Hung, 2015). Research has shown that PBL promotes competencies such as communication skills, teamwork, independent responsibility for learning, information sharing, feedback skills, knowledge application, problem solving, and creativity among health professions' students (Hung, 2015; Liaw, Chen, Klainin, Brammer, O'Brien & Samarasekera, 2010; Reeves, Mann, Caunce, Beecraft, Living, & Conway, 2004). PBL specifically facilitates the development of clinical reasoning strategies among health students including identifying assumptions, developing hypotheses, and considering options related to client treatment (Scaffa, & Wooster, 2004).

Creativity in health professions education

One definition of creativity is 'the ability to transcend traditional ideas,

rules, patterns, relationships, or the like and to create meaningful new ideas, forms, methods, interpretations, originality, progressiveness, or imagination' (Dictionary.com, 2017). Early research on creativity treated it as a personal trait. More recent research views creativity as multidimensional; it can take many forms and can be found within a variety of contexts (Adams, 2005; Gibson, 2010; Hung, 2015; Yunus, 2015). Contemporary creativity theories were expanded to utilise cognitive, psychological, environmental, and social lenses in order to broaden the understanding of human ability (Adams, 2005; Hung, 2015). The cognitive lens involves intelligence, previous knowledge, and creative thinking. The social aspect includes cultural, educational, or socioeconomic factors, while the personality aspect consists of motivation, confidence and non-conformity (Adams, 2005). Alternatively, Csikszentmihalyi (1996) conceptualises creativity through the lens of system dynamics. His study of creative people shows that their creativity develops and is recognised within a context and always has a cultural and social dimension. In his view, creative people like what they do; they report 'having fun' during activities. The key to creativity lies in 'how' rather than 'what'.

Despite the many definitions of creativity the elements that regularly appear in the definition of creativity are a new, original idea or insightful ideas that occur in a process of problem solving (Adams, 2005; Hung, 2015). Furthermore, most scholars recognise the importance of students' creativity in higher education (Shriki, & Lavy, 2014). For the purpose of this study, we use creativity as a multidimensional concept and creative art activities as a means of expressing and promoting it (Thompson, & Blair, 1998).

In the higher education, creativity is a key concept and it has become an important dimension in the study of science and technology (Bereczki, & Kárpáti, 2018; Yunus, 2015). Over the last century, educators have encouraged holistic education and specifically the cultivation of creativity, not as an art-related addition to school curricula but rather as an educational approach in its own right, expanding the cognitive dimensions of students' experience to include emotional and psychological aspects (Allen, 2011; Gibson, 2010). Educators argue that new millennium economic contingencies require the development of a greater capacity for creativity and not only a higher level of mental skills or other dispositions such as empathy and collegiality. In the 21st

century, it is important to develop innovative habits of mind and new ways for framing and solving problems to address the complex social and environmental issues that have emerged in the 'developed' world (Allen, 2011; Simmons, & Daley, 2013).

Despite the numerous definitions of creativity in higher education literature, some attributes such as originality, use of imagination, ability to create meaningful and new forms, and storytelling are shared (Gibson, 2010; Jackson, & Shaw, 2006). Although, creativity is widely supported and appreciated by teachers in all domains it is often missing in higher education curricula, which have been criticised for inhibiting creativity rather than fostering it (Gibson, 2010; Yunus, 2015).

Occupational therapy (OT) as one of the health professions that is taught in higher education, prepares students to address the occupational needs of individuals, groups, and communities (American Occupational Therapy Association [AOTA], 2014). Creative activities have been discussed in OT literature for over a century through the inclusion of arts and crafts in therapy (Christiansen, & Haertl, 2014). This tradition is grounded in the relationship between creativity and health because creative activities are valued as having a specific potential for creative expression that includes components such as expressing feelings, relief from concerning thoughts and physical relaxation (Mullersdorf, & Ivarsson, 2016; Thompson and Blair, 1998). In light of this view, contemporary scholars suggest that the knowledge base of OT should include elements of creativity; for example, intuition, curiosity, flexibility, adaptability, originality, and risk-taking (Law, 2007; Murray, 2010). As stated, one of the methods for achieving this is the establishment of a PBL course.

The rationale for implementing creative art activities in a PBL course within health professions education

Since PBL has proved effective for multiple higher order thinking and skills that are part of creativity (Hung, 2015), we proposed that the promotion of these skills among health professions students could be improved by the implementation of creative art activities in a PBL course. Eisner (2002) claims that arts have far greater utility for learning than simply as a tool for teaching and recommends including arts in the core curriculum in a variety of subjects. Green, Myers,

Watson, Czerwiec, Shapiro, and Draus (2016) argue that creativity involves skills such as analysis, decision-making and critical reflection that are essential for the practice of medicine. Furthermore, the act of creation process creates awareness of various possibilities and can be a counterbalance to linear thinking of medical education. Thus, implementing a creative art activity in a PBL course may promote creative thinking, thinking 'out of the box', looking at case studies in new ways and perceiving patterns that are not obvious.

Beyond that, PBL courses appear to predominantly cultivate an 'analytical eye' or 'left brain thinking' in students as logic thinking, which seek to identify problems and determine their possible solution (Edmonstone, 2006). Conversely, the use of art activities activates 'synthesis' artistic eye', or 'right brain thinking' such as synthesis of artistic and creative expression (Simmons, & Daley, 2013; Yunus, 2015). The art can be a way to move from an idea or an abstract image to the end product (i.e. drawing, a collage). In this way, tacit knowledge can be made explicit as an act of creating art. Thinking happens mostly in our heads, invisible to others and even to ourselves, but effective thinkers make their thinking visible (Simmons, & Daley, 2013).

Art experiences may provide health students with fresh insights and a new angle of vision on their lives, facilitating their understanding and encouraging students to develop a deeper understanding of the study material (Chan, 2013; McAndrew, & Roberts, 2015; Simmons, & Daley, 2013). Art activities enable health students to think with their senses, and hence, contribute to the process of understanding abstract and complex concepts. Moreover, art activities help students access previously hidden knowledge and create new understandings, and increase the extent of their participation (Simmons, & Daley, 2013; Simons, & Hicks, 2006).

Another justification for implementing creative art activities in a PBL course is related to the structure of PBL, which is generally fixed, rigid and has the same format throughout the semester or program (Davys, & Pope, 2006; Hung, 2015). From the experience of Davys and Pope (2006) in OT education, some students and staff report that following the set of PBL stages can become somewhat monotonous. Furthermore, some students feel uncomfortable with a PBL curriculum because they find it difficult to share their knowledge effectively with their peers,

due to their difficulty with assertively vocalising their findings within the group. This can lead to a sense of dissatisfaction, psychological withdrawal, and feelings of worthlessness (Davys, & Pope, 2006).

We believe that art activities can reduce these occurrences. Research has shown that the inclusion of a creative art experience generates an informal learning environment that facilitates students' collaboration, promotes emotional involvement, reduces anxiety and enhances enjoyment (Jones, Kittendorf, & Kumagai, 2017; Lave, 1996; Sawyer, 2011). Furthermore, in a previous study Avrech Bar, Pade, Jarus, Gat, Cohen, and Lipskaya-Velikosky (2018) explored the challenges manifested in a PBL course. Students who speak different native languages were compared. Students who spoke the local language as their first language were found to achieve higher grades than students who spoke the local language as their second language. Findings suggested that adjustments should be made in order to assist students challenged by language requirements in gaining higher grades in the program. Based on this study, we expected that implementation of a creative art activity, which does not require language, would give students time to process their experiences and improve their participation.

Few studies have examined the implementation of creative art activities in courses of higher education and little was written about the student involvement in the act of creation (Green at al., 2016; Simmons, & Daley, 2013). Therefore, the purpose of this study was to examine the outcomes of including a creative art activity, in this case collage, within a PBL meeting in the OT curriculum. In this paper, we present findings and insights regarding the impact that creating magazine collages had on students' learning skills. There are many varied artforms, such as painting, drawing, poetry writing, etc. We chose to use collage due to the advantages of visual art activities for the learning skills of students in health professions (Chan, 2013; McAndrew, & Roberts, 2015) and since it is readily available, accessible, convenient, and simple to use.

Method

Research design

A qualitative-ethnographic study was conducted during 2016–2017 to better understand how the experience of creating an art activity affected OT students. This approach seems to us appropriate for the evaluation

of dynamic processes and for studying dynamic work and the reciprocal interaction between participants in class, as well as for in-depth understanding of teaching methods. Gobbo (2011) stated that schools and classrooms are cultural environments and, as such, are considered as 'fields' for ethnographic research. Most of the research in the qualitative-ethnographic approach is based on the phenomenological perspective (Moustakas, 1994). This approach derives from a theoretical orientation that focusses on the essence of the participants' experience and allows the researcher to begin the research without the need for a clear and well-defined theory (Mitchell, 2014; Moustakas, 1994).

The first author is a fieldwork coordinator and a group facilitator, with experience in group facilitation through art. She has previous experience in using creative art in therapeutic interventions with children. The second author is a lecturer and the first year coordinator of the PBL course. The third author is a lecturer and program manager of PBL.

Participants

One hundred twenty six first year OT undergraduate students from two consecutive academic years in the School of Health Professions at Tel Aviv University, attended meetings of a PBL course that included a collage activity between the years 2016¬¬–2017 (2016: N=68; 2017: N=58). The research participants included 34 students (of the above 126). All the students were female, with an age range of 20–30. Four were minorities (matching the proportion of minorities in the class). In addition, nine tutors participated in the study (of the 18 tutors who attended the meetings that included the collage activity). All tutors were females, and they had between 1 to 10 years of experience in PBL tutoring. Three of the tutors were OT department faculty members and six were practicing OT clinicians.

Data collection

Data collection was conducted in different ways in order to increase the trustworthiness (triangulation) of our results (Marom and Ashkenazi, 2012) and included open questionnaires, focus groups, semi-structured interviews, and direct observation (Table 1). These means were constructed by the researchers based on knowledge gained from the professional literature on PBL, creativity, and their personal experience in

integrating creative art activities in teaching and tutoring. The participants in each of the data collection methods were different from each other.

Table 1. Various means for data collection

	Open questionnaires	Focus groups	Semi-structured interviews	Direct observations
2016	10 students	3 tutors	2 tutors	
2017		7 students 4 tutors	2 students	15 students (from 2 PBL groups)

Open questionnaires

In 2016, at the end of the second semester, questionnaires were sent to 68 first year OT undergraduate students by email. The questionnaire included open-ended questions exploring students' learning outcomes, experiences, feelings, thoughts, and insights regarding the process of creating a collage. Ten students responded. Examples of open-ended questions were: 'Characterize the benefits of the collage meeting for your learning and preparation skills', 'Do you feel/ think that the collage meeting was different than the other meetings'? 'Did you find the collage meeting beneficial? Please specify.'

Focus groups and semi-structured interviews

In 2016, nine tutors were asked to participate in a focus group in order to explore their experiences, feelings, thoughts, and insights regarding the process of creating a collage. The focus group was held in a quiet room in the OT department by two of the researchers (the first and the third authors) and included open- ended questions. Three tutors participated in a focus group and two were interviewed individually.

In 2017, at the end of the first semester, 58 first year students were asked by email to participate in a focus group at a time convenient to them. Seven of them participated in a focus group and two were

interviewed individually. In 2017, four tutors participated in the focus group. An example of an open-ended question for students was 'How would you summarize your experience of the collage meeting?' Examples of open-ended questions for tutors were 'How would you summarize your experience and the students' experience of the collage meeting?' 'Characterize the benefits of the collage meeting for the parameters on which the students are evaluated in the course (learning and preparation skills, developing knowledge and achieving goals)'. The focus groups and the interviews were recorded and transcribed verbatim. The focus groups and the semi-structured interviews lasted an hour and a half each. These methods of data collection are viewed as appropriate methods when the researcher is familiar with the domain of inquiry in advance, but not enough to be able to anticipate the results (Marom, & Ashkenazi, 2012).

Direct observation

Additionally, in 2017, direct observations were conducted by the first author in two sessions (7 students in the first meeting and 8 in the second) to examine the entire process that took place during the meeting. The observation focussed on the tutors' instructions, the art activity, the interactions between the students and the subsequent discussion. The data generated by the observation included a written description of the process and a transcription of the discussion.

Procedure

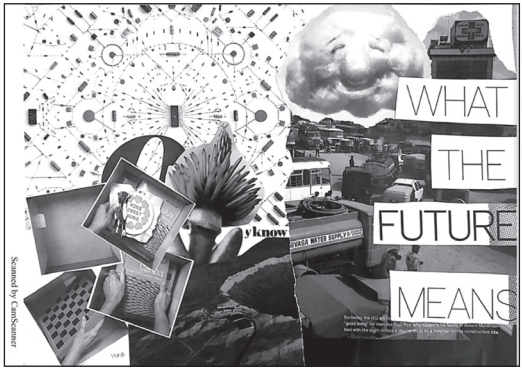
The study was approved by the ethical committee of Tel Aviv University. All participants included in the study (students and tutors) signed an informed consent form. The PBL course in our department is included in the curriculum from the first year of studies and continues until the end of the fourth year. Each year students are divided into nine groups of 6–8 students. The groups meet once a week for two academic hours (90 minutes). Each group has one tutor who guides the students in the learning process. The PBL tutorial sessions are organised accordingly: students first choose a problem, read it aloud, identify and clarify unfamiliar terms, brainstorm questions, derive learning objectives from the questions, study inbetween the sessions, return to the tutorial with new information to discuss with the group, identify new learning objectives, and evaluate each other's performance at the end of each meeting.

For the purpose of this study, in one meeting of the PBL course 126 first year OT undergraduate students were asked to create a collage reflecting the case study they chose, followed by a discussion of the experience (see Figure 1). In 2016, the collage activity was scheduled for the fifth meeting (of 13) and in 2017 it was held in the third meeting. We conducted the meetings in two different timings during the course in order to examine whether the timing had any impact on the findings.

Prior to the meeting in which the collage activity was held, the tutors were given creative means for creating the collage, such as coloured magazines, glue, scissors, crayons, magic markers, and received an explanation of the process by a first-year coordinator (the second author).

The structure of the meetings was uniform and included the following stages: choosing a new case study; creating an individual collage in twenty minutes based on the description of the case study that each group chose; sharing the experience with the group; selecting learning objectives for the next meeting, and giving or receiving feedback. Before creating their collages, the students received the following instructions from their tutors: 'You have before you different materials. I invite you to use them to create your own collage that reflects your perception of the case study'. After creating the collage, the tutors gave the following instruction: 'Now I invite you to share the creative process and its content with the group'. If the students found it difficult to share their experience, then the tutor's role was to stimulate discussion by asking open-ended questions such as 'How did you choose the pictures?' 'What does the collage present and how does it relate to the case study?' 'What did you learn about the client in the case study and about yourselves?'

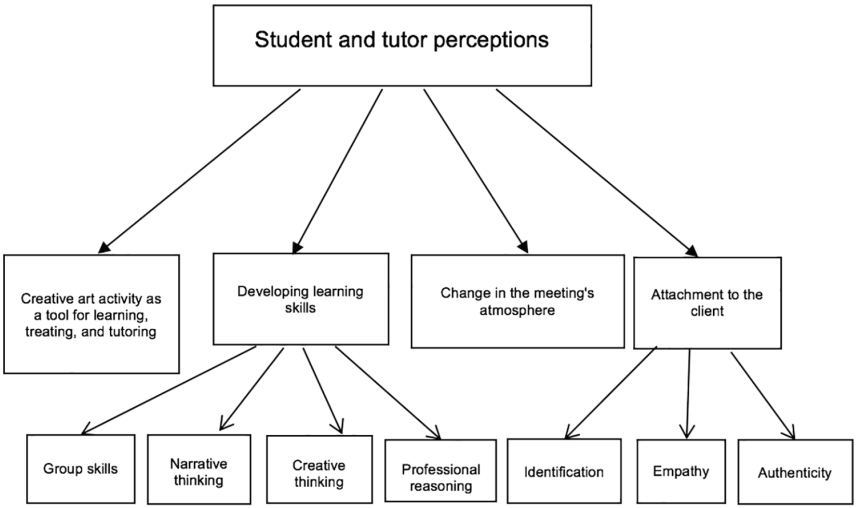
Figure 1. Example of a collage (S 7)



Data analysis

A content analysis plan based on Shkedi's (2003) work was conducted in three stages: the initial review, developing mapping categories, and building a mapping categories tree. The initial review stage involved line-by-line open coding (Strauss, & Corbin, 1994): dividing the open questionnaires, focus groups, interviews, and direct observation transcript into meaningful segments, and naming segments using the participants' language. The mapping stage included clustering the segments (from all transcripts) into initial categories and developing a new system of categories. The final categories were arranged in main and sub-categories. The researchers then specified the relationship between each category and the other categories and created main categories, while attempting to detect the relationship between them as part of a process of conceptualisation (Shkedi, 2003). Once the main categories and sub-categories were verified by returning to the data, the researchers organised the mapping into the categories tree (Figure 2).

Figure 2. Categories tree summarizing key findings on student and tutor perceptions



These three stages were undertaken by the first and the third authors and by a research assistant, who analysed the data at first individually and then with the two authors by discussing, questioning, proposing

alternatives, and verifying linkages throughout the coding. The research assistant had no prior knowledge of using art activities in higher education to ensure more trustworthiness results.

The data analysis began at the end of the first year with open coding of the questionnaires and interviews, and identifying initial categories. At that stage, we decided to continue our study to obtain more information from the students and their tutors. At the end of the second year, we analysed all the data. Data from the second year strengthened the initial categories, although the collage activity was scheduled for different times during the course in each year.

Representative quotations were identified to highlight the categories. The reporting of this qualitative study is in accordance with the consolidated criteria for reporting qualitative research (Tong, Sainsbury, & Craig, 2007).

Results

Analysis of transcripts from the open questionnaires, focus groups, interviews, and direct observations revealed four main categories regarding perceptions of students and tutors about the creative art activity in a PBL meeting: (a) attachment to the client, (b) change in the meeting's atmosphere, (c) developing learning skills, and (d) a creative art activity as a tool for learning, treating, and tutoring. These categories were found for both years 2016 and 2017, regardless of the point in time in which the collage meeting took place. These categories and their sub-categories are detailed in the tree shown in Figure 2. Each main category will be described in detail and illustrated with excerpts from the various means of data collection. Students are represented by the letter S and tutors by the letter T.

Attachment to the client

The students reported that through the creation of the collage the attachment to the client described in the case study becomes more intense. These feelings were also reported by tutors and observed in the direct observations. Engaging in visual stimulation, the collage created a picture of the person described in the case study, led to feelings of closeness to the client, and raised the awareness and emotional involvement of students:

'I had a stronger connection to the client.' (S 1).

'It made me emotionally involved.' (S 2).

'I see the client clearly … He felt more authentic for me.' (S 4)

In addition, T1 stated:

'It gave them the opportunity to become attached to the person in the case study.'

In these examples, we notice that the students developed feelings of empathy and authenticity. For example:

'There was a feeling that we saw the client clearly, and created a picture of a genuine man.' (S 8)

Another phenomenon observed and reported by students is the strengthening of identification feelings. For example, when the students dealt with and discussed a case study that related to eating disorders, one student began to cry because she remembered a time when she was dealing with the same disorder.

One of the students (S 5) described all these phenomena well:

'I felt that at this meeting I was looking at the client himself, his feelings, his life, not only dry statistics and data.'

In addition, the students and tutors reported that this meeting encouraged the students to turn more often to the clinical field for information (such as interviewing a professional team member or clients) in order to study their learning objectives and not to rely only on papers in academic journals. As a result of utilising visual means, followed by the development of feelings of empathy and authenticity, the students obtained an understanding that they have the option of receiving answers to their learning objectives in the clinical field and not only through theoretical resources.

Change in the meeting's atmosphere

The structure and process of the meeting in which the students created a collage was somewhat different from the other meetings. It may be said that the structure was 'looser' and less strict than that of other meetings. Although there was a case study to investigate, the instructions were

general and allowed students to choose what to do in the process itself and in this respect, the nature of the meeting was partly 'improvised' and open to interpretation. Such a 'loose' structure enabled students to create a dialogue that fosters discovery, innovation, various interpretations, and the construction of a professional identity (Erez, & Nouri, 2010; Lave, 1996; Sawyer, 2011).

The students reported that the change of structure and the process of the meeting created a change in the atmosphere. They often used expressions such as:

'Refreshing' ,'breaking routine', 'flowing', 'informal', 'does not create commitment/ obligation', 'less competitive', and 'causes surprise'.

S 3 described this in detail:

'The atmosphere was calm and relaxed without the tension of sharing the information you prepared for class.'

Tutors used the following similar expressions to describe the meeting:

'Pleasant', 'flowing', and 'release'.

Students and tutors pointed out that the meeting's structure and atmosphere enabled a time to think and to process thoughts and feelings. For example, (S 1) stated:

'I had time to think and process my thoughts, and not in words' and T 2 added that: ' ... this atmosphere enables learning'.

These findings led us to the third main category.

Developing learning skills

Students and tutors reported that the meeting contributed to the development of professional reasoning skills, creative thinking, and group skills. The students pointed out that the visual means in the form of a collage enabled them to think more deeply and to stimulate previous knowledge.

Below are quotations of two students and one tutor:

'The magazine pictures helped me retrieve my former knowledge...' (S 6). 'It stimulated me to retrieve knowledge ...' (S 7).

'The process helped the students create a connection with knowledge that they acquired in their theoretical courses' (T 1).

In addition, students and tutors argued that the meeting contributed to raising learning objectives as part of the professional reasoning process. The variety of pictures in the magazines enabled them to think about inquiry objectives they would not have thought of without them. S 3 stated:

'We have progressed in determining objectives' and S 7: 'It contributed to different inquiry objectives, more experiences, less physical'.

T 3 agreed that creating the collage 'raised a lot of learning objectives'.

Searching for pictures in the magazines enabled students to understand the client's narrative from many different aspects, such as his environment, roles, and everyday occupations. For example, when a student discovered a picture of a family, it reminded her that the client had a family:

'I thought more about the client's occupations and his surroundings ... I saw a tree and its roots; this reminded me that the client has a community and a family' (S 6).

S 1 stated:

'We were able to see the different world views in the same case study and to see that even though we all study the same profession, we think differently.'

In addition, a tutor added:

'The client can be seen from various aspects ... The collage reflected the student's personality ... enabled her to express herself in more narrative thinking and less academic'(T5).

It seems that the process of considering the client from different aspects (emotional, social, and cognitive) and the development of feelings of empathy and authenticity contributed to the development of creative thinking. Creative thinking means thinking about new things or thinking in new ways. It is thinking 'outside the box' (Adams, 2005). Students and tutors reported the development of these forms of thinking. S 10 stated:

'(The collage) contributed to the research skills and really changed our patterns of thinking' and S 7 added:

'It opened my mind to a different thinking ... contributed to thinking out of the box ... developed our narrative thinking, enabled expression of the personal voice of each of us, there was room for personal interpretation.'

The tutors had similar reflections. T 4 perceived the collage as a

'Potential for promoting creative ... thinking skills.'

One of the significant influences of the process of creating the collage was the development of group skills. In the PBL course, group skills include helping and contributing to the group, sensitivity to the needs of the group's members, respect for their opinions, listening, communication skills, and teamwork (Scaffa, & Wooster, 2004). Statements of students and tutors, as well as the direct observations, support this process:

'It enabled group collaboration and gave each group a place to express their views on the subject, and thus opened the door to a deeper acquaintance with the group's participants' (S 4).

Students and tutors reported that students, who had difficulty expressing themselves in the group, expressed themselves better in this meeting:

'It was easier for me to speak in the group when I knew that everything I said was correct and not subject to criticism. In addition, there was someone in my group who was always afraid to speak, and suddenly, at the collage meeting she asked to speak first' (S 8).

'The visual stimulation made it easier for me to bring the content theoretically' (S 11).

And tutors made statements such as:

'The students were sensitive to each other', it helped them get to know each other' (T 3).

'Their acquaintance became deeper' (T 6).

Not only did they get to know each other better, but some students said that they received a different acquaintance with the tutor.

'It changed the dynamics with the tutor' (S 8).

In addition, tutors pointed out that they got to know the students better.

Creative art activity as a learning, treating, and tutoring tool

Since the PBL course is mostly based on verbal discussions, creating a collage gave students a new learning and treating tool. It also gave the tutors a new tutoring tool for facilitating the groups.

A student said that engaging in cutting out magazine pictures with scissors made her think about the difficulty the client had with using scissors:

'When I used the scissors, I thought about Daniel (the client in the case study) who might have a problem using scissors' ... 'Using the scissors helps understand the difficulties of the client in the case study' (S 8).

This quotation emphasises how creating a collage during the learning process was a tool that helped the students in their learning process.

Others students stated how the collage could serve as a tool in the intervention process in OT. S 9 said:

'It is an accessible means for many people and therefore an adequate means for treatment.'

S 14 explained:

'As a person who has never been in a therapeutic situation as a patient, I realise how easy it is to express ideas through the collage. I understand now why occupational therapists use the collage as a treatment tool.'

Tutors reported that the collage activity gave them the idea to integrate art activity in tutoring and not only in treatment:

'It is a means of teaching.' 'It is a means that may help me direct the students' (T 7).

Thus, students were enriched by receiving learning and therapeutic tool and tutors a tutoring and teaching tool, meeting the need for active teaching and active learning by students.

Discussion

The aim of the present study was to explore the impact of a creative art activity on health profession's students and tutors in a PBL course. Through open questionnaires, interviews, focus groups, and direct observations during the meetings, findings revealed four

main categories: attachment to the client, change in the meeting's atmosphere, developing learning skills, and a creative art activity as learning, treating and tutoring tool.

The findings of this study are consistent with the professional literature regarding the use of a creative art activity in education. The literature describes creative art activities as those that enable participants to re-experience objects, events, and identities in new ways, provide an opportunity for cultivating rich ideas, as well as allowing better understanding of themselves and stimulating thinking (Chan, 2013; Jones et al., 2017; Simmons, & Daley, 2013). A qualitative study conducted by Jones et al. (2017) explored how the creation of artwork might impact medical students. The authors found that students consequently experience enhanced awareness of those with illness, similar to what our findings regarding attachment to the client. A creative art activity allowed students to respond emotionally to illness encountered by them or their relatives (Jones et al. 2017). We also found that while creating the collage, students recalled their own and their relatives' coping with illness, and thus identified more closely with the client. Furthermore, our study revealed another aspect, which is authenticity. Authenticity is considered as one of the dimensions of active and constructive learning, equipping students with the necessary skills for their future and encouraging proactive learning experiences (Alt, 2016).

With regard to the category of change in the meeting's atmosphere, our study supports Csikszentmihalyi's view on the importance of context in the creativity process (Csikszentmihalyi, 1996). The possibility of performing an art activity during a PBL course created an informal environment with rules that were more flexible and open than in the rest of the meetings. Such an environment and open space gives students time to consolidate and conceptualise their thoughts and feelings and find new ideas (Hung, 2015; Gibson, 2010). Additionally, students were surprised to receive such a creative art activity since the other meetings involved verbal discussions with stricter rules. Such an element of surprise develops discovery, insight, and growth (Eisner, 2002). Consistent with other research (Chan, 2013; Eisner, 2002; Jones et al. 2017; Simmons, & Daley, 2013) this growth was also reflected in our findings about learning skills such as professional reasoning and group skills. Using a creative art activity makes unconscious thoughts and feelings explicit, because it transforms them into tangible material; thus

participants gain opportunities to make new meanings and connections among their ideas and seem better able to access hidden knowledge (Eisner, 2002; Jones et al. 2017). As stated above, reports by students and tutors demonstrate that creating a collage enabled students to stimulate previous knowledge and to view the client from diverse aspects. Furthermore, the findings revealed that creating a collage helped students focus their learning objectives. This finding is consistent with the research conducted by Simmons and Daley (2013), who used collage in two graduate classes on identity development and in a national conference workshop on the same topic. Students in our study, similar to those in Simmons and Daley's, reported that the learning objectives evolved while looking through magazines and creating a collage.

We believe that changing the atmosphere in a PBL meeting by creating a collage developed not only professional skills but also group skills. The atmosphere described by students as 'informal', 'non-obligatory', and 'less competitive' enabled students to express themselves easily. Additionally, creating a collage influenced how they saw themselves and each other, and tutors also got to know them better through their products and reflections on the process. The finding that a creative art activity develops communication and group skills is also supported by a study conducted by Jones et al. among medical students (2017). Unexpectedly and contrary to our expectations, there was no improvement in the participation of students from minority groups (who are challenged by language requirements), but as the students stated, the process changed the set of roles in the group, equality was created, and the quiet students shared more often.

The professional literature gives us a fragmented and limited picture of the acquisition of oral presentation skills. Oral presentation skills involve a combination of instructional environment variables, student characteristics, and their learning process and performance (Amirian, & Tavakoli, 2016). Lack of confidence and of self-efficacy are more noticeable when students must perform a task before an audience because students become the focal point of the class and have to share their information and present it orally to the class. Therefore, when a change was made in the atmosphere by using a creative art activity, students who had not been participating verbally due to various personal reasons participated more often.

The fourth category found in the study was creative art activity as a learning, treating, and tutoring tool. This finding is similar to Simmons and Daley's (2013) findings whereby collage is a powerful learning tool for adult learners. Students in the current study reported that familiarity with the collage make them realise that they can use art activities as a tool for learning and as a therapeutic tool with their clients in the future. Tutors reported that they now realise that creative art activities can be a tutoring tool. This insight is especially important when teaching OT students and other health professions practitioners, who need skills such as creativity, communication, and professional thinking for their practice (Adam, Peters, & Chipchase, 2013; Lewin, & Reed, 1998).

Based on our findings we propose that the collage in the case study be perceived as a type of metaphor. The metaphor is a language of the right hemisphere of the brain; it brings to mind the inner contents charged with emotions and the very encounter with newly evoked feelings. Therefore, using metaphors makes it possible to penetrate the verbal language and reveal a hidden, complex dimension that touches upon inner truth (Mills, & Crowley, 2014). Thus, it is not surprising that we found students to report feelings of authenticity, empathy, and identification. Furthermore, the collage as a metaphor of the case study also appears to have led to the enhancement of thinking skills. Metaphors play a central role in learning processes in the acquisition of entirely new knowledge or in the reconstruction of existing knowledge schemes, since the metaphor makes it possible to look at a new concept via other well-known concepts. Students often face a problem that cannot be explained in their existing conceptual system and in order to solve the problem the metaphor offers a different way of looking at it. In addition, the use of metaphors aids the process of understanding abstract and complex concepts and promotes active learning (Carter, & Pitcher, 2010; Ryman, Porter, & Galbraith, 2009). The collage as a metaphor plays a central role not only in the learning process but also in the teaching process, especially in terms of improving individual teacher performance and teaching practice (McCandless, 2012; Singh, 2010). This is congruent with our study findings as the creative art activity was a tool for learning and teaching.

Limitations

This study has several limitations. First, the study was limited to one course – a PBL course – within one department, among first year OT

students. Thus, the perceptions of the participating students and tutors may not be representative of all students who participate in other courses, classes, or departments. Second, the participating students and tutors were volunteers in the study and thus may have been particularly cooperative and enthusiastic. However, this is a common limitation in qualitative research (Jones et al. 2017). Finally, there was only one meeting with a single activity – a collage – hence; it does not necessarily reflect results that would have been obtained from other art activities. We suggest studying the collage created by the students in additional meetings and/or studying other creative art activities such as painting, dancing, and poetry.

Conclusions

The current study shed new light on the advantages of integrating a creative art activity during an academic course in order to promote active learning and teaching. Specifically, the results show that the integration of a creative art activity such as collage in a PBL course changed the atmosphere of the meetings, and consequently enhanced learning skills. Moreover, using a creative art activity, such as collage, enriched the students and tutors by providing students with a learning and treatment tool and tutors with an instruction tools. Therefore, the collage as a metaphor plays a central role not only in the learning process but also in the teaching process in higher education. Furthermore, it is recommended that teachers in higher education implement art activities, such as a collage, in traditional teaching as well as in small groups. Future studies should more thoroughly explore the impact of creative art activities on students and teachers of the health professions in different educational settings.

References

Adams, K. (2005). The Sources of Innovation and Creativity. *National Center on Education and the Economy* (NJ1).

Adam, K., Peters, S., & Chipchase, L. (2013). Knowledge, skills and professional behaviours required by occupational therapist and physiotherapist beginning practitioners in work related practice: A systematic review. *Australian Occupational Therapy Journal, 60,* 76–84. doi: 10.1111/1440-1630.12006

Allen, B. (2011, November). *The importance of creativity: Teaching for transformation in higher education*. Paper presented at the AARE Annual Conference, Hobart, Australia.

Alt, D. (2016). Contemporary constructivist practices in higher education settings and academic motivational factors. *Australian Journal of Adult Learning, 56*(3), 374–399.

American Occupational Therapy Association. (2014). Occupation therapy practice framework domain and process. *American Journal of Occupational Therapy, 68*, 1–47. doi:10.5014/ajot.2014.682006

Amirian, S. M. R., & Tavakoli, E. (2016). Academic oral presentation self-efficacy: A cross-sectional interdisciplinary comparative study. *Higher Education Research & Development, 35*, 1095–1110. doi: 10.1080/07294360.2016.1160874

Avrech Bar, M., Pade, M., Jarus, T., Gat, S., Kaufman Cohen, Y., & Lipskaya-Velikovsky, L. (2018). Problem-based learning in occupational therapy curriculum–implications and challenges. *Disability and rehabilitation, 40*(17), 2098–2104. doi: 10.1080/09638288.2017.1325942.

Bereczki, E. O., & Kárpáti, A. (2018). Teachers' beliefs about creativity and its nurture: A systematic review of the recent research literature. *Educational Research Review, 23,* 25–56. doi: 10.1016/j.edurev.2017.10.003

Carter, S., & Pitcher, R. (2010). Extended metaphors for pedagogy: using sameness and difference. *Teaching in higher education, 15*, 579–589. doi: 10.1080/13562517.2010.491904

Chan, Z. C. (2013). Drawing in nursing PBL. *Nurse education today, 33,* 818–822. doi: 10.1016/j.nedt.2012.02.018

Christiansen, C. H & Haertl, K. (2014). A contextual history of Occupational Therapy. In B. A. B. Schell, G. Gillen & M. Scaffa (Eds.), *Willard & Spackman's occupational therapy* (12th ed), (pp. 9–34). Philadelphia: Wolters Kluwer, Lippincott, Williams & Wilkins.

Csikszentmihalyi, M. (1996). Flow and the psychology of discovery and invention. New York: Harper Collins.

Davys, D., & Pope, K. (2006). Problem-based learning within occupational therapy education: A summary of the Salford experience. *British Journal of Occupational Therapy, 69*, 572–574. doi: 10.1177/030802260606901207

Dictionary.com. (2017). Creativity. http://www.dictionary.com/browse/creativity?s=t/ Accessed 20 July 2017.

Edmonstone, J. (2006). *Building on the best: An introduction to appreciative inquiry in health care*. Chichester: Kingsham Press.

Eisner, E. W. (2002). What can education learn from the arts about the practice of education? *Journal of curriculum and supervision, 18,* 4–16.

Erez, M., & Nouri, R. (2010). Creativity: The influence of cultural, social, and work contexts. *Management and Organization Review, 6,* 351–370. doi: 10.1111/j.1740-8784.2010.00191.x

Gaspar, D., & Mabic, M. (2014). Creativity in higher education. *Economic and Social Development: Book of Proceedings, 112*.

Gibson, R. (2010). The 'art' of creative teaching: implications for higher education. T*eaching in Higher Education, 15,* 607–613. doi: 10.1080/13562517.2010.493349

Gobbo, F. (2011). Ethnographic research in multicultural educational contexts as a contribution to intercultural dialogue. *Policy Futures in Education, 9*(1), 35–42.

Green, M. J., Myers, K., Watson, K., Czerwiec, M. K., Shapiro, D., & Draus, S. (2016). Creativity in medical education: the value of having medical students make stuff. *Journal of Medical Humanities, 37*(4), 475–483.

Halliwell, V. (2008). Challenging knowledge reproduction: problem-based learning for evidence-based practice. *British Journal of Occupational Therapy, 71,* 257–262. doi: 10.1177/030802260807100608

Hendricson, W. D. (1993). *PBL case writing workbook*. San Antonio: University of Texas Health Science Center.

Hung, W. (2015). Cultivating creative problem solvers: The PBL style. *Asia Pacific Education Review, 16,* 237–246. doi: 10.1007/s12564-015-9368-7

Jackson, N. & Shaw, M. (2006). Developing subject perspectives on creativity in higher education. In N. Jackson, M. Oliver, M. Shaw, et al. (Eds.), *Developing creativity in higher education: An imaginative curriculum*. New York (NY) and London: Routledge.

Jones, E. K., Kittendorf, A. L., & Kumagai, A. K. (2017). *Creative art and medical student development: A qualitative study. Medical education, 51,* 174–183. doi: 10.1111/medu.13140

Jung, B., Tryssenaar, J., & Wilkins, S. (2005). Becoming a tutor: Exploring the learning experiences and needs of novice tutors in a PBL programme. *Medical Teacher, 27*, 606–612. doi: 10.1080/01421590500069728

Lave, J. (1996). Teaching, as learning, in practice. *Mind, culture, and activity, 3,* 149–164. doi: 10.1207/s15327884mca0303_2

Law, M. C. (2007). Occupational Therapy: A Journey Driven by Curiosity. *The American Journal of Occupational Therapy, 61*, 599. doi: 10.5014/ajot.61.5.599

Lewin, J. E., & Reed, C. A. (1998). *Creative problem solving in occupational therapy: With stories about children*. Philadelphia: Lippincott.

Liaw, S. Y., Chen, F. G., Klainin, P., Brammer, J., O'Brien, A., & Samarasekera, D. D. (2010). Developing clinical competency in crisis event management: An integrated simulation problem-based learning activity. *Advances in Health Sciences Education, 15*(3), 403–413.

Marom R. B., & Ashkenazi, M. (2012). Research methodology. In R. B. Marom & M. Ashkenazi, (Eds.), *Research methods in the social sciences: Guiding principles and research styles* (pp. 16–34). Raanana: The Open University of Israel.

McAndrew, S., & Roberts, D. (2015). Reflection in nurse education: Promoting deeper thinking through the use of painting. *Reflective Practice, 16*, 206–217. doi: 10.1080/14623943.2014.992406

McCandless, B. (2012). The use and misuse of metaphor in education and education reform. *Education, 132,* 538–547.

Mills, J. C., & Crowley, R. J. (2014). *Therapeutic metaphors for children and the child within*. New York: Routledge.

Mitchell, D. M. (2014). Evolving practice: A relational framework for developing understandings of university teaching practice. *Australian Journal of Teacher Education, 39,* 29–46. doi: 10.14221/ajte.2014v39n10.3

Moustakas, C. (1994). *Phenomenological research methods*. London: Sage.

Müllersdorf, M., & Ivarsson, A. B. (2016). What, why, how–creative activities in occupational therapy practice in Sweden. *Occupational Therapy International, 23,* 369–378. doi: 10.1002/oti.1438

Murray C. (2010). Fostering student creativity. OT Practice, 15, 9–12.

Prince, M. (2004). Does active learning work? A review of the research. *Journal of engineering education, 93*(3), 223–231. doi: 10.1002/j.2168-9830.2004.tb00809.x

Pundak, D., & Rozner, S. (2008). Empowering engineering college staff to adopt active learning methods. *Journal of Science Education and Technology, 17,* 152–163.

Reeves, S., Mann, L. S., Caunce, M., Beecraft, S., Living, R., & Conway, M. (2004). Understanding the effects of problem-based learning on practice: findings from a survey of newly qualified occupational therapists. *British Journal of Occupational Therapy, 67,* 323–327. doi: 10.1177/030802260406700707

Ryman, J. A., Porter, T. W., & Galbraith, C. S. (2009). Disciplined imagination: Art and metaphor in the business school classroom. *International Journal of Education & the Arts, 10*(10), 1–25. Retrieved from http://www.ijea.org/v10n10/v10n10.pdf

Sawyer, R. K. (2011). What makes good teachers great? The artful balance of structure and improvisation. In R. K. Sawyer (Ed.), *Structure and improvisation in creative teaching* (pp. 1–24). New York: Cambridge University Press.

Scaffa, M. E., & Wooster, D. M. (2004). Effects of problem-based learning on clinical reasoning in occupational therapy. *American Journal of Occupational Therapy, 58*, 333–336. doi: 10.5014/ajot.58.3.333

Schell, R., & Kaufman, D. (2015). Designing PBL case studies for patient-centered care. *International Journal of Learning, Teaching and Educational Research, 13*, 160–180.

Shkedi, A. (2003). *Words of meaning: Qualitative research-theory and practice*. Tel-Aviv: Tel-Aviv University Ramot.

Shriki, A., & Lavy, I. (2014). Students' self-assessment of creativity: Benefits and limitations. In Proceedings of the 38th Conference of the International Group for the Psychology of Mathematics Education (Vol. 5, pp. 177–184). Vancouver, Canada: PME

Simmons, N., & Daley, S. (2013). The art of thinking: Using collage to stimulate scholarly work. *The Canadian Journal for the Scholarship of Teaching and Learning, 4,* 1–10. doi: 10.5206/cjsotl-rcacea.2013.1.2

Simons, H., & Hicks, J. (2006). Opening doors: Using the creative arts in learning and teaching. *Arts and Humanities in Higher Education, 5*(1), 77–90. doi: 10.1177/1474022206059998

Singh, K. (2010). Metaphor as a tool in educational leadership classroom. *Management in Education, 24,* 127–131. doi: 10.1177/0892020608090411

Stern, P., & D'Amico, F. J. (2001). Problem effectiveness in an occupational therapy problem-based learning course. *American Journal of Occupational Therapy, 55,* 455–462. doi: 10.5014/ajot.55.4.455

Strauss, A., Corbin, J. (1994). Grounded theory methodology: An overview. In N. K. Denzin & Y. S. Lincoln, (Eds.), *Handbook of qualitative research.* (pp. 273–285). Thousand Oaks, CA: Sage

Thompson, M., & Blair, S. E. (1998). Creative arts in occupational therapy: ancient history or contemporary practise? *Occupational Therapy International, 5,* 48–64. doi: 10.1002/oti.67

Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated criteria for reporting qualitative research (COREQ): A 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care, 19*, 349–357. doi: 10.1093/intqhc/mzm042

White, P. J., Larson, I., Styles, K., Yuriev, E., Evans, D. R., Rangachari, P. K., & Eise, N. (2016). Adopting an active learning approach to teaching in a research-intensive higher education context transformed staff teaching attitudes and behaviours. *Higher Education Research & Development, 35,* 619–633. doi: 10.1080/07294360.2015.1107887

Yunus, M. (2015). Challenges and alternative of creativity development in higher education. *Journal of Humanity, 3*, 67–77. doi: 10.14724/jh.v3i2.39

About the authors

Sarah Gat is a teacher and a clinical fieldwork coordinator in Tel-Aviv University. She received her M.A in 2003 from Lesley University, Cambridge, Massachusetts, in Holistic Health Studies. Her research interests include understanding the process of supervising occupational therapy students in clinical fieldwork and using creative means in teaching and learning process.

Margalit Pade is a teacher in Tel Aviv University. She received her PhD in 2005 from Tel Aviv University. Among others, her research interests include adolescents and adults with Learning Disabilities and the contribution of Problem-Based Learning (PBL) to occupational therapy students.

Michal Avrech Bar is a lecturer in Tel Aviv University. She received her PhD in 2009 from Tel Aviv University in Israel followed by a postdoctoral fellowship at the University of British Columbia, Vancouver, Canada. Among others, her research interests focus on testing the contribution of Problem-Based Learning (PBL) to the development of health students' learning and communication skills.

Contact details

Dr Michal Avrech Bar
Department of Occupational Therapy
School of Health Professions,
Sackler Faculty of Medicine,
Tel Aviv University, Tel Aviv, Israel.

Email: michaavr@tauex.tau.ac.il

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Adult learning: Barriers and enablers to advancement in Canadian power engineering

Clayton Mullen

University of Phoenix

Yohannes Mariam

University of Phoenix

Power engineering certification in Canada comprises a hierarchical, graduated system available to both young and adult learners. This paper offers insight into the knowledge gap regarding factors influencing Canadian power engineers' decision to pursue advanced certification in the Provinces of British Columbia and Alberta, with implications for adult learning in the power engineering sector of Canada. Comprehension of factors that influence intentions for power engineering certification may illuminate barriers and enablers to adult learning and provide evidentiary knowledge to support a format that facilitates advancement of certification. The research methodology was quantitative correlational design in which linear and logistic regressions employing a modified Bonferroni equivalent alpha were utilised. An original survey was developed for the study and pilot tested for validity and reliability. The sample comprised 1st, 2nd, and 3rd Class power engineers in British Columbia and Alberta. The dependent variable (DV) was the power engineers' advancement intention.

In the context of this paper, advancement intention is an influence leading to the inclination or reluctance to pursue promotion, succession, or advancement in employment. The independent variables (IVs) were time commitment, educational support, locus of control, time elapsed since previous certification, responsibility, and peer appraisal. Revealed in the results were positive, statistically significant relationships between the DV of advancement intention and three of the six IVs. Time commitment, responsibility, and elapsed time exert statistically significant effects on advancement intention (DV). The three remaining IVs that did not exhibit significant relationships with the DV were educational support, locus of control, and peer appraisal. This indicated that the IVs of educational support, locus of control, and peer appraisal did not significantly influence the DV when compared to the significant influences of time commitment, responsibility, and elapsed time on the DV. Comprehension of the influential factors regarding the intention of Canadian power engineers to pursue advanced certification may assist industry and academia with insight into the barriers and enablers to higher certification, and the correlation of decision factors with advancement intention.

Keywords: *Professional learning, adult education, Canadian power engineering, advancement.*

Introduction

Canadian power engineering certification ranges from Fourth (lowest) to First Class (highest). Fifth Class certification was not included in the study. Power engineers constitute an indispensable component of the labour force (The Institute of Power Engineers, 2017). Canadian government officials mandate formal academic and practical power engineering certification for individuals working with pressurised vessels, systems, and thermodynamic processes (Safety Authority, 2017). The quality of evaluation in learning scenarios incorporating practical (practice-based) learning is critical to achieving learning outcomes and conferring skills and knowledge (Logue, 2017). The opportunity to advance is a strong motivator for career-driven individuals, and this motivation requires stewardship to facilitate advancement. ‘Cognitive

and motivational limitations exist for individuals and the constraints imposed upon their choices and actions within an organisation' (Scott, & Davis, 2007, p. 36). The personal negotiation process driving the advancement decision was central to the study. How an individual introspectively identifies with learning and the learning process influences academic goal achievement (Altmann, 2011). This introspection is an individual's subjective attitude or mindset towards learning. Anthropomorphically, the practical training component represents the skeleton and musculature of power engineering certification. The academic training component represents the brain and central nervous system of power engineering certification. The overarching power engineering program is the body, integrating the practical and academic elements. Power engineering offers education, training, and preparation extending from the operational to managerial, leadership, and business levels.

The general problem central to this study was lack of understanding of the factors that drive Canadian power engineers' decision to pursue advanced certification levels affecting the industry's ability to fill job openings in regulatory-mandated senior roles. Lack of power engineers in the managerial echelon (First and Second Class) impedes industrial progress in areas such as energy exploration, power generation, and manufacturing in Canada (Global News, 2017). The specific problem is that Canadian power engineers are not pursuing advanced certification needed to fulfill critical positions. For example, the distribution of power engineers in British Columbia is five per cent, 14 per cent, 30 per cent and five per cent for First, Second, Third, and Fourth-Class power engineers, respectively (BCSA-BTAC, 2017; Safety Authority, 2017).

Leaders and academicians require insight into factors inhibiting or inviting engineers to obtain higher level certification, and to gain perspective into the barriers and enablers to the academic and practical elements of adult engineering education. Contemporary approaches to adult learning include integration of work, home, and sociocultural environments with the objective of developing critical thinking and problem-solving skills, and to augment self-awareness (Allen, & Withey, 2017; Logue, 2017). The purpose of this study was to explore the presence of relationships between the IVs (time commitment, educational support, locus of control, time elapsed since previous certification, responsibility,

and peer appraisal) and the DV (advancement intention). Understanding these relationships may assist in implementing measures that will reduce specific labour shortages in Canada's Power and Energy industries. In Canada, for the period of 2011–2020, power engineering related job openings derivative of expansion and replacement demands are projected to rise to 11,310 with only 8,109 job seekers available for these positions (Working in Canada, 2012).

Examined in this study were the influence of predominantly structural (time commitment, elapsed time, access to educational support) and predominantly humanistic (locus of control, responsibility, peer appraisal) decision factors (variables) upon the decision to advance. Structural or humanistic labels cannot be absolutely assigned to each variable, as they are not mutually exclusive and may coexist within a variable. However, for the purposes of this paper, the six IVs were assigned as either structural or humanistic. Identifying which factors were amenable to intervention may provide avenues to support advancement. Saar, Täht, and Roosalu (2014) similarly classified barriers (variables) to continuing adult education as situational (structural/humanistic), institutional (structural), and dispositional (structural/humanistic).

The study variables chosen were predicated upon the primary author's 20 years of direct experience as a power engineer, conversations and investigations during these years with a wide spectrum of industry and academic personnel, participation on power engineering, academic and technical advisory committees, higher-level education, and practical and academic exposure to the advancement process. Additionally, the identification of the study variables is rooted in Herzberg's Two-factor theory of motivators and hygiene factors (Hunter, 2012; Reif, 1975; Tuwei, Matelong, Boit, & Tallam, 2013; Yang, 2011) and supporting models including Maslow's hierarchy (Bille, 1978; Hunter, 2012; Johnson & Mortimer, 2011; Loscocco, 1989; Martin & Tuch, 1993), attribution theory (Ghonsooly & Shirvan, 2011; Jarvis, 2005; Weiner, 1979), and expectancy theory (Latane, Williams, & Harkins, 1979; Tyagi, 2010). For example, Herzberg's motivators and hygiene factors relate to the variables in this study, as motivators and hygiene factors may create the appropriate conditions for job satisfaction, or not detract from job satisfaction, as influences on the advancement decision.

The study was guided by the following research questions: What is the relationship between power engineers' intention to: (a) upgrade and the time commitment associated with First- or Second-Class certification? (b) upgrade and access to educational support for First or Second-Class certification? (c) upgrade and locus of control associated with First- or Second-Class certification? (d) upgrade and time elapsed since previous certification? (e) upgrade and the level of responsibility associated with First or Second-Class certification? (f) upgrade and peer appraisal associated with First or Second-Class certification? The null and alternative hypotheses reflect the research questions.

Power engineers ascending the class hierarchy face time commitment demands. The power engineer determines whether potential rewards associated with advancement warrant the additional time commitment to the workplace (Koubova, & Buchko, 2013). It is appropriate to assess work as a single constituent of life satisfaction, instead of the primary component in terms of life-work balance (Koubova, & Buchko, 2013). Relinquishing leisure or family time affects the family unit (Mubanga, & Nyanhete, 2013). Access to educational support is critical in self-directed learning and career advancement, while self-directed learners carried the most responsibility for deciding what was to be learned, and the method and rate of learning (Confessore, & Kops, 1998; Thurasamy, Lo, Amri, & Noor, 2011). Regardless of age, a gap (elapsed time) in academic study has implications for each individual (Znidarsic, 2012). How a student introspectively identifies with learning and the learning process influences academic goal achievement (Altmann, 2011). The individual considering upgrading after years of non-study is characterised as a mature learner, who must manage habits and behaviours embedded by experience (Willans, & Seary, 2011). The concept of responsibility is a subjective attribute of decision makers. Levels of responsibility untenable to one individual are manageable to another. The consequences of responsibility for the individual are not entirely positive (Hall, & Ferris, 2011). The manner in which their peers perceive and appraise others is a strong driver of behaviour, while fear of failure and accompanying judgment can eclipse the desire to advance, contingent upon the significance of the activity to the individual (Bélanger, Lafrenière, Vallerand, & Kruglanski, 2013).

The locus of control variable, while not identified in the analysis as statistically significant, is contextually relevant with the study variables.

An individual's locus of control orientation dictates how an individual perceives personal control over his/her life. Individuals possessing internal control loci accredit outcomes as consequences of personal actions (Igbeneghu, & Popoola, 2011). Individuals possessing an external locus of control assign outcomes to unmanageable phenomena such as luck, fate, or destiny (Igbeneghu & Popoola, 2011). Comparable studies in direct alignment with Canadian power engineering attraction/retention and advancement intention are few. Existing literature related to advancement intention and the six decision factors comprising each IV was available for consideration independently. Governing concepts were value system drivers including Herzberg's two-factor theory, Maslow's hierarchy of needs, locus of control, expectancy, prospect and attribution theories.

Method and design

A quantitative method was employed to collect and analyse numerical data using a five-point Likert-type ordinal-level survey as the data collection instrument. A survey instrument was appropriate for the quantification of subjective variables for correlational analysis. Likert-type scales are insensitive to linear transformation (Dobrovolny, & Fuentes, 2008). Quantitative studies provide a broader view of the phenomena under investigation (Hahs-Vaughn, & Lomax, 2013; Walker, & Madden, 2012). Statistical analysis comprised correlational analysis employing Spearman's rho, multiple linear regression (MLR) to generate multiple correlational values, and ordinal (ordered) logistic regression (OLR) using a modified Bonferroni equivalent alpha. Once Institutional Review Board (IRB) approval was secured, the survey instrument was pilot-tested antecedent to the main study data collection. The research design using Spearman's rho and MLR to generate correlations, followed with OLR to generate odds ratios, was appropriate to identify if the intent to upgrade fluctuates with decision factors. Spearman's rho tested the null hypotheses and determined if particular decision factors corresponded with advancement intention. Spearman's rho is a very commonly used correlative measure when analysing data that are not interval-level and assesses covariance between two variables (Hahs-Vaughn, & Lomax, 2013; Walker, & Madden, 2012). OLR is appropriate in cases where the DV is an ordinal variable, and when the researcher seeks to determine the extent to which one or more

predictors affect this ordinal DV (Harrell, 2015; Hosmer, & Lemeshow, 2004; Orme, & Combs-Orme, 2009). The design aligned with study objectives of determining the presence or absence of correlations between advancement intention and decision factors influencing advancement intention. Study weaknesses may be related to the weaker non-probability convenience sampling method (Christensen, Johnson, & Turner, 2011), and a smaller sample size limiting the potential to detect true relationships among the study variables (Vogt, 2007).

Sample

The population consisted of Canadian certified power engineers working primarily in registered, First Class facilities (BC Power Engineer, 2013 in British Columbia and Alberta. The population of First, Second, and Third-Class engineers (Statistics Canada, 2011) was estimated at 4700. The total population figure is difficult to confirm since once an individual attains certification, it is seldom re-registered. The electronic survey link was emailed to each facility Chief Power Engineer who acted as the facility contact agent. The contact agent then emailed the link to all First, Second, and Third-Class Power Engineers at their facility. Chief Power Engineers are the ideal contact agents for distribution of the survey link to their power engineering employees. The Chief Engineer has direct control over power engineers at their respective facility and ensures that power engineers meet regulatory requirements. The Chief Power Engineers were asked to encourage survey participation. Initially, a target sample size of a minimum of 150 participants was approximated for the main study. The figure was established through incipient communication with the facility contact agents and a priori power analyses. A priori power analyses were conducted in G*Power 3.1.9.2 specifying a correlation and assuming a bivariate normal model was used.

A priori analyses are performed before a study is conducted as a method for determining sample size and controlling statistical power (Bredenkamp, 1969; Hager, 2006). Additional specifications consisted of a one-tailed test, an alpha of 0.05, a minimum statistical power of 0.80, a weak correlation of 0.2, along with a null hypothesis of zero correlation (Faul, Erdfelder, Lang, & Buchner, 2007). The results of the analysis indicated a minimum sample size of 153 in order to achieve a minimum statistical power of 0.80. The initial estimated attainable

sample from the participating facilities was approximately 440. The survey generated 338 responses from the sample of 440, resulting in a 77% response rate. The 338 initial survey responses were reduced to 298 as a result of missing or incomplete responses. Many of the power engineer participants work on a shift schedule and have access to a common work computer terminal. While multiple users (employees) use the same terminal, each employee had a unique, personal email address. Survey Monkey software allows multiple responses from the same Internet Provider address. Consequently, the data collection tool was designed for ease of use in terms of multiple users on a single terminal, time management, and simplicity.

Instrument

A survey instrument was appropriate for the quantification of subjective variables for correlational analysis (Dobrovolny, & Fuentes, 2008), as the Likert-type scale is insensitive to linear transformation. Likert-type scale questions provide specific information. The researcher can sum the answers to the questions to get an overall rating, with composite rating scales tending to be more accurate than answers to single questions (Vogt, 2007). The survey was comprised of original questions plus validated, peer-reviewed locus of control survey questions (see Appendix A). An existing adaptable survey could not be located for use with the study. The original survey questions were conceptualised and adapted based on the research questions and hypotheses. The 23-question original survey contained one question for the DV of advancement intention. The IVs were represented by the following number of survey questions: (a) time commitment (4 questions); (b) educational support (4 questions); (c) locus of control (3 questions); (d) elapsed time (4 questions); (e) responsibility (3 questions); and (f) peer appraisal (4 questions) (see Appendix A).

Several validated peer-reviewed locus of control survey questions (Sapp, & Harrod, 1993), from an existing survey, were integrated with the original survey questions to form a single survey. The locus of control validated survey questions were added to properly address the locus of control variable in the context of the study. The original survey instrument generated for the power engineering study was tested for validity and reliability. Pilot testing consisted of construct validity

testing via factor analysis, reliability testing (internal consistency) using Cronbach's alpha, and content validity testing using Lawshe's CVR (Kline, 2014; Lawshe, 1975; Yurdugul, 2008). Cronbach's alpha is a measure of internal consistency or scale reliability for the original survey instrument used in this study. Cronbach's alpha determined the extent to which the items in the survey are related. For the original survey, the Cronbach's alpha value exceeded the acceptable threshold of 0.7 (Nunnaly, & Bernstein, 1994).

The appropriate pilot study sample size for pilot testing the data collection instrument (survey) was determined via G*Power as with the main study. A priori power analysis indicated a sample size of approximately 30 for the pilot study. Pilot testing required three iterations, with 31 respondents per iteration, before establishing acceptable construct validity, reliability/internal consistency, and content validity. The result of the final pilot test indicated an acceptable factor structure for construct validity from the rotated component matrix of 0.803 to 0.913 (The importance of pilot studies, 2001). Cronbach's alpha values exceeded 0.7 on the third pilot test and were deemed acceptable (Yurdugul, 2008). The calculated Lawshe's CVR for the pilot study was 0.92, which exceeded the acceptable threshold value of 0.56 (Lawshe, 1975). Therefore, the survey instrument was deemed appropriate for use in the main study. Pilot study data were downloaded directly from the Survey Monkey database into a Statistical Product and Service Solutions (SPSS v24) data file and statistically analysed using SPSS software. The data for the pilot study were not included in the data used for the main study.

Data collection

Consistent with individual participant protections, collected data were treated as undifferentiated to protect organisational identity and unsolicited exposure. Data were collected in a non-interventional manner without manipulating the IVs or disturbing the population. The informed consent form was embedded in the electronic survey. Data was collected electronically via a survey link emailed to each facility Chief Engineer (contact agent). The contact agent then emailed the link to all First, Second, and Third-Class Power Engineers at their facility.

Analysis

Initially, Likert-type scale responses were coded from (strongly disagree = 1) to (strongly agree = 5). The coding was reversed to (strongly agree = 1) to (strongly disagree = 5) prior to uploading the data to the SPSS data file. The data were recoded with the reversed coding so that SPSS comparisons could be made with 'strongly disagree' as the base category. For OLR, SPSS makes comparisons with the highest coded (numbered) category as the base category. During data analysis Spearman's rho was used to evaluate the degree to which the relationship between two variables can be explained via a monotonic function. OLR was chosen to follow Spearman's rho to add methodological strength to the analysis. Spearman's rho served to test for the existence, magnitude, and direction of the relationship between two non-normally distributed measures, making this test an appropriate choice for the current study (Hahs-Vaughn, & Lomax, 2013). Ordinal-level measurement aligns with Likert-type scales and Spearman's rho, as well as OLR analysis. The summative benefit of following Spearman's rho with OLR methodology is that the impact of each IV on the DV is determined through OLR, while controlling for all other IVs included in the analysis (Harrell, 2015; Hosmer, & Lemeshow, 2004; Orme, & Combs-Orme, 2009). Following Spearman's rho and multiple regressions with OLR provides the researcher with correlation values and odds ratios as composite tools for investigation of research hypotheses.

A modified Bonferroni equivalent -□ of 0.0083 was calculated for this study to manage Type 1 error. Since numerous statistical tests were employed, a modified Bonferroni equivalent alpha was generated to account for cumulative error resulting from myriad tests. The objective of the modified Bonferroni adjustment was to make it difficult for a single test to be more statistically significant than another test (Jaccard, & Wan, 1996; Holland, & Copenhaver, 1988; Holm, 1979). As the Bonferroni equivalent -□ calculated for this study was 0.0083, for tests using the same database, the Bonferroni adjusted level of significance had to be less than or equal to 0.0083 in order to obtain statistical significance for any one test. A probability value of less than 0.0083 for a single test would be deemed statistically significant. Conversely, a test statistic would be deemed non-significant if it resulted in a probability value greater than 0.0083.

Results

Revealed in the results were positive and significant relationships between the DV of advancement intention and three of the six IVs. Time commitment, responsibility, and elapsed time exert a statistically significant effect on advancement intention. The IVs were initially analyzed with Spearman's rho as high-level screening criteria, prior to MLR and OLR, to determine if the IV should be included in a predictive model.

Positive and statistically significant relationships were observed between (i) *time commitment* [(r = 0.70, r^2 = 0.49, p < 0.001)] / [Exp_B = 4.524 (95% CI, 3.129 to 6.542), Wald $\chi^2(1) = 64.357$, $p < 0.001$] and the DV, (ii) *responsibility* [(r = 0.52, r^2 = 0.27, $p > 0.001$)] / [Exp_B = 2.471 (95% CI, 1.467 to 4.163), Wald $\chi^2(1) = 11.554$, p = 0.001] and the DV, and (iii) *time elapsed* [(r = 0.50, r^2 = 0.25, $p < 0.001$)] / [Exp_B = 0.343 (95% CI, 0.226 to 0.521), Wald $\chi 2(1) = 25.178$, $p < 0.001$] and the DV.

Study findings failed to confirm the presence of statistically significant relationships between (i) *educational support* [(r = 0.41, r^2 = 0.17, p < 0.001)] / [Exp_B = 0.851 (95% CI, 0.538 to 1.347), Wald $\chi^2(1) = 0.473$, $p = 0.492$], (ii) *locus of control* [(r = 0.18, r^2 = 0.03, $p = 0.054$)] / [Exp_B = 0.732 (95% CI, 0.503 to 1.064), Wald $\chi^2(1) = 2.675$, p = 0.102], and (iii) *peer appraisal* [(r = 0.34, r^2 = 0.12, $p > 0.001$)] / [Exp_B = 1.374 (95% CI, 0.827 to 2.284), Wald $\chi 2(1) = 1.503$, $p = 0.22$] and the DV.

Statistically significant results for time-based variables (time commitment and time elapsed) were anticipated and intuitive. Statistically significant results for responsibility, while intuitive, were less predictable as personal predispositions toward responsibility vary. The lack of a statistically significant effect for locus of control on the DV was surprising given the behavioural (introversion/extroversion) influences on decision-making.

Discussion

Canadian power engineering certification comprises both academic and practical components. The academic component is delivered via an educational institute and constitutes formal learning. The practical learning component is delivered in the workplace environment and

encompasses field-based learning and exposure to processes, which may include pressurized vessels, systems, and thermodynamic operations. The practical component, while equally important, is less formalized than the academic portion of power engineering training and certification. Akinsooto and Akpomuje (2018) described four stages of informal learning: (a) tacit (socialization); (b) incidental (unintentional); (c) explicit (partially intentional); and (d) self-directed (fully intentional). Informal learning exists, in differing proportions, in both academic and practical learning processes. The power engineer pursuing certification through academic and practical avenues may move along the continuum from tacit to self-directed learning in the same subject matter area from both academic and practical perspectives. Focus on formal and informal learning processes is fundamental to acquiring knowledge in both academic and practical environments. The three IVs displayed significant relationships with the DV are time commitment, responsibility, and time elapsed.

Time commitment

The statistically significant value for time commitment (T-Average) at 5% level of significance (p = 0.001), was less than the modified Bonferroni equivalent alpha of 0.0083. Exp_B or the odds ratio indicates the likelihood of an event occurring. The Exp_B value of 4.524 indicated that an increase in time commitment is associated with power engineers being more committed to certification upgrade (advancement intention). For every one-unit increase on the five-point Likert-type scale response for time commitment, a 4.524-fold increase exists in the likelihood of committing to upgrading. If time commitment can be favourably influenced, commitment to upgrade can be theoretically influenced 4.524 times. Whether it is the estimate coefficients or Exp_B, when the variable is statistically significant, its estimates fall within the 95% confidence interval.

Responsibility

A statistically significant p-value (*Sig*) of 0.001 for responsibility was achieved and was less than the modified Bonferroni equivalent of 0.0083. The Exp_B (odds ratio) of 2.471 signified that a one unit increase in responsibility is associated with an increase in the odds of

being likely to commit to certificate upgrade (advancement intention). Simply, for one (1) unit increase on the 5-point Likert-type scale response, a 2.471-fold increase exists in the likelihood of committing to upgrading. If responsibility can be framed favourably, commitment to upgrade can be theoretically influenced 2.471 times.

Time elapsed

A significant *p*-value (*Sig*) of < 0.001 for elapsed time was generated, which is less than the modified Bonferroni equivalent of .0083. The Exp_B value for elapsed time is 0.343. For elapsed time, the odds ratio multiplier approximates 0.31. An odds ratio of 0.31 (i.e., 69% decrease in the odds ratio), indicates a one unit increase in elapsed time is associated with a 69% decrease in the odds of being likely to commit to certificate upgrade (advancement intention). Note that the elapsed time variable, instinctively, has an inverse relationship with advancement intention. Positive responses to the survey question for this variable indicate elapsed time as an obstacle to certification advancement. To ameliorate the conceivable negative effect of elapsed time on advancement intention, mitigation strategies are required. Implementing incentives to encourage upgrading may minimise the adverse effects of elapsed time on advancement intention.

Conclusion

Time commitment

Intuitively, increasing time committed to a task (e.g. upgrading) will confer positive outcomes toward task completion. Increasing time committed to a task elevates the potential for task completion. Power engineers as adult learners (>18 years) deciding to pursue advanced certification, by implication, make the choice to increase their workload through the addition of time devoted to study and homework in a mass balance exercise. Time relinquished to one function must be subtracted from another function. Attitudes toward study and homework play a large role in academic achievement as students gain maturity and enter a self-regulated learning environment (Chang, Wall, Tare, Golonka, & Vatz, 2014). Once the decision is made to pursue higher certification, arming power engineers with information relevant to effective time

management strategies is recommended to facilitate advancement. Effective learning requires objectives meaningful, actions designed to support the objectives, and effort expended to indicate achievement of these objectives (Macdougall, Epstein, & Highet, 2017).

Chang et al. (2014) reported a positive association between time committed to study and homework, and the potential for facilitating successful outcomes. These potentials include quality of instruction, academic motivation, and intellectual ability (see also Chang et al., 2014), as factors important in encouraging the pursuit and sustainment of the desire for additional learning. The results of the current study denoting the benefits of increasing time committed to class level upgrading are supported in the literature, though not directly in terms of the power engineering discipline. Time committed to homework and study extended the time to learn outside the classroom and enhanced academic learning possibly through priming the active cognitive processing and learning functions (Cooper, 1989, 2001; Mayer, 2011; Rawson, Stahovich, & Mayer, 2016). Engagement is the amount of time that a student commits to a task, and operates as a mechanism to influence learning outcomes, as indicated by achievement (Rawson et al., 2016).

Responsibility

An increased level of responsibility associated with the job role, whether real or perceived, has different implications for each individual. Responsibility is a subjective concept that cannot be unequivocally expressed through conversation or literature. Additional quantitative, qualitative, or mixed methods research may enhance comprehension of responsibility as a key construct in accordance with the specific research area under investigation. An individuals' affinity or repulsion for the challenge of responsibility must be learned and appreciated through practical experience and may either attract or deter the power engineer considering advancement. Creating attractive conditions surrounding job role responsibilities may attract the power engineer seeking greater challenges or encourage the power engineer who may be indecisive regarding upgrading. Job and career satisfaction tend to make employees enthusiastic in their work and provides a greater sense of responsibility (Kong, Cheung, & Zhang, 2010). The survey results indicated that responding affirmatively to statements framing

responsibility favourably correlated with an affirmative response to seeking advanced certification.

The power engineer pursuing advanced certification, and potentially a senior position with greater responsibility, will consider methods of adapting and managing this responsibility. The individual may conform to the job role, reject the job role, shape or modify the job role, or within limits, create a more idiosyncratically acceptable role (Afiouni, & Karam, 2014). The astute manager or leader may assist to align entry into this role, within organisational limits, to suit an appropriate candidate in terms of role indoctrination and adapting to increased and changing demands (Afiouni, & Karam, 2014). As a recommendation, arranging probationary or trial periods in senior job roles accord the power engineer with exposure to new levels of responsibility. The probationary role ideally will provide the power engineer with job experience at a senior level, permits the employee to determine their suitability for the role, and allows managers to temporarily fill the position and examine specific candidates for the roles.

Time elapsed

The elapsed time variable, instinctively, has an inverse relationship with advancement intention. As the temporal gap between previously achieved certification and exposure to the study increases, presumably, advancement intention decreases. Cook (2010) cited that adult learners encountered different obstacles than full-time students in traditional academic environments. Elapsed time, or time passed, cannot be recovered. To ameliorate the conceivable negative effect of elapsed time on advancement intention, mitigation strategies are required. Implementing incentives to encourage upgrading may minimise the adverse effects of elapsed time on advancement intention. A similar inverse relationship was indicated in the literature review (Igbeneghu, & Popoola, 2011) between organisational commitment and the degree of an individual's predisposition to externality (external locus of control).

Incentives must serve joint objectives of both the power engineer and management. If management and the employee have divergent objectives, positive outcomes are unlikely. Will (2015) stated that the method for changing perceptions regarding negative influences (e.g.

elapsed time) might not be shared by both management and employees (see also Klein, & Sorra, 1996; Kotter, & Schlesinger, 2008; Lines, 2004; Rumelt, 1995; Zeffane, 1995). The initial step in encouraging the power engineer is to create the desire to upgrade, notwithstanding the temporal gap since prior certification or academic study. Management must work with employees to determine the type of incentives that may positively influence employee behaviour (Aisha, & Hardjomidjojo, 2013). Similar to the variables of time commitment and responsibility, creating an upgrading plan involving the power engineer and leadership may produce the ideal environment for a positive outcome.

The power engineer contemplating advancement after a lapse in time may have myriad motivations including enhancing their ability to compete in a knowledge-based environment (Ahmad, Abiddin, Badusah, & Pang, 2009: Lee, & Pang, 2014) or to fulfill the need to transfer effective learning skills to the workplace (see also Madsen, & Wilson, 2006; Nirodha, Amaratunga, & Haigh, 2014). The power engineer, as an adult learner, may also be confronted with obstacles involving weak study practices, adapting to technology, time management, and anxiety stemming from a changing environment. The variables in the current study were segregated into structural and humanistic components. Barriers and enablers to upgrading may also be separated into structural/humanistic or cognitive/physical constituents (Cook, 2010). A critical task for the power engineer, managers, leaders, and the educational institution is to evaluate the obstacles for each individual, prior to engaging with academic pursuits (Turcotte, 2015). Identifying and removing obstacles prior to certification upgrade may reduce anxiety for the power engineer and enhance confidence.

Locus of control

The locus of control variable, after analysis, did not indicate an acceptable correlation for inclusion in the predictive model. However, locus of control is a transitive variable with the potential to largely influence inherent decision-making processes and subsequently, more discreet decision components such as career path, educational pursuits, relationships, and leadership predispositions. The primary author's experience indicates that this variable has the potential to perceptively influence the other IVs in the study, through the transitive properties of

personal control loci. Internal or external loci held by the participants may affect responses to survey questions probing time commitments, requirements for support, elapsed time since previous certification, responsibility assessments, and peer appraisal. Personality factors derivative of locus of control, such as introversion/extroversion and leader/follower orientation may relate to advancement intention.

In conclusion, advancement intention and decision variables such as time commitment, effect of lapses in times on study, educational support systems, moderating effects of responsibility, peer appraisal, and locus of control were studied. The results of the study provide sound evidence for the presence of significant relationships between the IVs of time commitment, responsibility, and elapsed time with the DV of advancement intention. The study was conducted in western Canada. However, the method employed, and the findings could be potentially applicable to the rest of Canada, as well as to other countries that exhibit similar power engineering advancement guidelines. The findings of the present study clearly include conditions that may enhance or facilitate advancement in power engineer class and conditions that may attract and/or retain power engineers. Potential exists for application of study findings in other fields requiring formal certification.

Investigated in the current study were the theoretical (academic) and practical (operational) elements of power engineering certification, and the power engineering archetype. The elements are pervasive and inherent to many career paths including information management, science-based study, and business. Preparation and training for power engineering encompasses quantitative aspects similar to the disciplines of hard science and qualitative aspects inherent to business, management, and leadership. The focus of the current study was to understand the bridging mechanisms required to enable both quantitative and qualitative aspects in the power engineer. The understanding is valuable for general preparation and career path development.

Canadian power engineering offers an attractive career path. The power engineering discipline integrates practical field-level work experience with rigorous academic study through a graduated and progressive certification hierarchy. Power engineering sets the foundation for advancement in industry and academia, in conjunction with the desires

and needs of the power engineer. Training in power engineering accrues benefits for the individual, industry, and academia.

Limitations

Limitations may arise from the validity and reliability of the pilot study for the original survey. Employing 'combined' measures with OLR, rather than 'individual' measures, reduced the overall number of tests required in the analysis. Fewer tests assisted to manage Type 1 error, but when combining measures into a single measure for the purposes of analysis, reliability needs to be sufficiently high for this to be appropriate (Bland, & Altman, 1997). The results of the study were also limited by the number of participants available to participate in the survey. Wildfires in the Fort McMurray region (The Globe and Mail, 2016), and the lower commodity price for oil (Patterson, 2016; Low oil prices, 2015) adversely affected the facilities and the sample responses. As convenience sampling was used in the current study, any results obtained can only be applied to the sample analysed. To the extent that the characteristics of the convenience sample resembled or could be used to represent certified power engineers in other provinces, the results of the study can be important to interprovincial-certified, power engineering community. The generalisation of results found to the population from which the sample was derived, or any other population, would need to be tentative at best. The sample was limited to two Canadian provinces, with the results being less generalisable to other geographical areas. This paper provides a foundational quantitative platform for further power engineering research.

Recommendations for future research

Locus of control was considered in the current study as an influence on advancement intention. A future qualitative study with a focus on personal control loci may produce deeper and more meaningful results with a different sample. Locus of control predispositions are rarely polarised as fully internal or fully external. An internalised locus does not presuppose complete free will. An externalised locus does not presuppose a completely deterministic universe. Positions along the locus of control continuum represent individual perspectives, thought, values, needs, motivations, and situatedness. If the astute manager,

leader, or academic can recognise these positional elements in an individual, they may leverage the attributes to support and develop the individual aspiring to succeed. Further research on locus of control in relation to decision-making is recommended. Loci of control factors are fertile areas for further academic investigation, perhaps through cross-sectional or longitudinal studies to investigate causation. Future research should also include similarly affected industries confronted with the challenge of recruiting 1st and 2nd Class Power Engineers, and an investigation of the cultures in affected organisations for similarities and differences.

Research regarding the joint management of change between stakeholders and principals involved in the change process is recommended. Changes are required to overcome barriers and enhance enablers to the upgrading process. In the current study, the stakeholders are power engineers, and industry and academic agents. Change requires postulating the problem, generating hypotheses, and testing for relationships between conjectural solutions and outcomes. Tucker, Hendy, & Barlow (2015) cited change theory as a predictive assumption regarding the relationship between desired changes and the actions that might affect the changes (see also Kezar, Gehrke, & Elrod, 2015). The stakeholders as change agents ideally work as a team, but with specifically identified roles for enabling an upgrading or advancement process. Tucker, Hendy and Barlow (2015) contended that facilitating change in healthcare organisations required clarity of role assignments in the change process. Role assignment is a determining factor for improving change management processes (Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004). Research in the area of change agency may be generalisable to many areas in industry and academia, including power engineering. Change agency is a central aspect in the decision to pursue advancement certification. The power engineer, or adult learner, must remove obstacles to advancement through changing internal or external aspects of the learning process to facilitate advancement. The ability to manage change creates conditions for learning and advancement.

References

Afiouni, F., & Karam, C. M. (2014). Structure, agency, and notions of career success. *Career Development International, 19*(5), 548–571. doi:10.1108/cdi-01-2013-0007

Ahmad, A. R., Abiddin, N. Z., Badusah, J., & Pang, S. W. (2009). Computer usage and achievement among adults in rural area Malaysia. *Journal of Social Sciences, 5*(1), 1–8. doi:10.3844/jssp.2009.1.8

Aisha, A. N., & Hardjomidjojo, P. (2013). Effects of working ability, working condition, motivation and incentive on employees' multi-dimensional performance. *International Journal of Innovation, Management and Technology, 4*(6), 605. doi:10.7763/IJIMT.2013.V4.470

Akinsooto, T. A., & Akpomuje, P. Y. (2018). Achieving Sustainable Development Goals through Adult Informal Learning. *Australian Journal of Adult Learning, 58*(3), 426–448. Retrieved from https://search-ebscohost-com.proxy1.ncu.edu/login.aspx?direct=true&db=eric&AN=EJ1199853&site=eds-live

Allen, P., & Withey, P. (2017). The student customer phenomenon. *Journal of Higher Education Theory and Practice, 17*(3), 45–56. Retrieved from http://ezp.waldenulibrary.org/login?url=https://search-proquest-com.ezp.waldenulibrary.org/docview/1926895801?accountid=14872

Altmann, T. K. (2011). Registered nurses returning to school for a Bachelors' degree in nursing: Issues emerging from a meta-analysis of the research. Contemporary Nurse: *A Journal for the Australian Nursing Profession, 39*(2), 256–272. doi:10.5172/conu.2011.256

BCSA - *BTAC Item 2.2.1 Power Engineers Exam Report. (2017).* Retrieved from http://www.safetyauthority

BC Power Engineer, Boiler, Pressure Vessel, and Refrigeration Safety Regulation Safety Standards Act, 2013. (2013). Retrieved from http://www.bclaws.ca/EPLibraries/ bclaws_new/document/ID/freeside/17_104_2004#section44

Bélanger, J. J., Lafrenière, M. K., Vallerand, R. J., & Kruglanski, A. W. (2013). Driven by fear: The effect of success and failure information on passionate individuals' performance. *Journal of Personality and Social Psychology, 104*(1), 180–195. doi:10.1037/a0029585

Bille, D. A. (1978). Planning staff development: 'Theory X or theory Y?'. *The Journal of Continuing Education in Nursing, 9*(6), 10–15. Retrieved from http://www.healio.com/nursing/journals/jcen/1978-11-9-6

Bland, J. M., & Altman D. G. (1997). Cronbach's alpha. *British Medical Journal, 314*(7080), 572.

Bredenkamp, J. (1969). Über die Anwendung von Signifikanztests bei Theorietestenden Experimenten [The application of significance tests in theory-testing experiments]. *Psychologische Beiträge, 11,* 275–285.

Chang, C. B., Wall, D., Tare, M., Golonka, E., & Vatz, K. (2014). Relationships of attitudes toward homework and time spent on homework to course outcomes: The case of foreign language learning. *Journal of Educational Psychology, 106*(4), 1049–1065. doi:10.1016/j.learninstruc.2007.02.009

Christensen, L. B., Johnson, R. B., & Turner, L. A. (2011). *Research methods, design, and analysis.* Boston, MA: Allyn & Bacon.

Confessore, S. J., & Kops, W. J. (1998). Self-directed learning and the learning organization. *Human Resource Development Quarterly, 9* (4), 365–375. doi:10.1002/hrdq.3920090407

Cook, N. A. (2010). Becoming an andragogical librarian: Using library instruction as a tool to combat library anxiety and empower adult learners. *New Review of Academic Librarianship, 16*(2), 208–227. doi:10.1080/13614533.2010.507388

Cooper, H. (1989). *Homework.* White Plains, NY: Longman. doi:10.1037/11578-000

Cooper, H. (2001). *The battle over homework* (2nd ed.). Thousand Oaks, CA: Corwin.

Dobrovolny, J., & Fuentes, S. (2008). Quantitative versus qualitative evaluation: A tool to decide which to use. *Performance Improvement, 47*(4), 7–14. doi:10.1002/pfi.197

Faul, F., Erdfelder, E., Lang, A-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2), 175–191. doi:10.3758/bf03193146

Ghonsooly, B., & Shirvan, M. E. (2011). On the relation of locus of control and L2 reading and writing achievement. *English Language Teaching, 4*(4), 234–244. doi:10.5539/elt.v4n4p234

Global News. (2017). We desperately need them': Calgary program fast tracks power engineers. Retrieved from https://globalnews.ca/news/2182883/we-desperately-need-them-calgary-program-fast-tracks-power-engineers/

Greenhalgh, T., Robert, G., Macfarlane, F., Bate, P., & Kyriakidou, O. (2004). Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly, 82*(4), 581–629. doi:10.1111/j.0887-378x.2004.0035= 25.x

Hager, W. (2006). Die Fallibilität empirischer Daten und die Notwendigkeit der Kontrolle von falschen Entscheidungen [The fallibility of empirical data and the need for controlling for false decisions]. *Zeitschrift für Psychologie, 214,* 10–23.

Hall, A. T., & Ferris, G. R. (2011). Accountability and extra-role behavior. *Employee Responsibilities and Rights Journal, 23*(2), 131–144. doi:10.1007/s10672-010-9148-9

Hahs-Vaughn, D., & R. Lomax. (2013). *An Introduction to Statistical Concepts*, 3rd edn. New York: Routledge

Harrell, F. (2015). *Regression modeling strategies: With applications to linear models, logistic and ordinal regression, and survival analysis*. New York, NY: Springer.

Holland, B. S., & Copenhaver, M. (1988). Improved Bonferroni-type multiple testing procedures. *Psychological Bulletin 104:* 145–149. doi:10.1037//0033-2909.104.1.145

Holm, S. (1979). A simple sequentially rejective multiple test procedure. *Scandinavian Journal of Statistics, 6,* 65–70. Retrieved from https://www.jstor.org/stable/ 4615733?seq=1#page_scan_tab_contents

Hosmer, D. W., & Lemeshow, S. (2004). *Applied logistic regression*. New York, NY: John Wiley & Sons.

Hunter, M. (2012). How motivation really works: Towards an emoto-motivation paradigm. *Economics, Management and Financial Markets, 7*(4), 138–196. Retrieved from https://www.researchgate.net/publication/260249179_How_ Motivation_Really_Works_Towards_an_Emoto-Motivation_Paradigm

Igbeneghu, B. I., & Popoola, S. O. (2011). Influence of locus of control and job satisfaction on organizational commitment: A study of medical records personnel in university teaching hospitals in Nigeria. *Library Philosophy and Practice, 1–22*. Retrieved from http://digitalcommons.unl.edu/cgi/viewcontent.cgi? article=1606&context=libphilprac

Jaccard, J. J., & Wan, C. K. (1996, March). *LISREL approaches to interaction effects in multiple regression*. In series: Quantitative applications in the social sciences. Thousand Oaks, CA: Sage. doi:10.4135/9781412984782

Jarvis, M. (2005). *The psychology of effective learning and teaching*. London, England: Trans-Atlantic Publications.

Johnson, M. K., & Mortimer, J. T. (2011). Origins and outcomes of judgments about work. *Social Forces, 89*(4), 1239–1260. doi:10.1093/sf/89.4.1239

Kezar, A., Gehrke, S., & Elrod, S. (2015). Implicit theories of change as a barrier to change on college campuses: An examination of STEM reform. *Review of Higher Education, 38*(4),

Klein, K. J., & Sorra, J. S. (1996). The challenge of innovation implementation. *Academy of Management Review, 21*(4), 1055–1080. doi:10.2307/259164

Kline, P. (2014). *An easy guide to factor analysis*. Routledge.

Kong, H., Cheung, C., & Zhang, H. Q. (2010). Career management systems: what are China's state-owned hotels practicing?. *International Journal of Contemporary Hospitality Management, 22*(4), 467–482. doi:10.1108/95961190980000616

Kotter, J. P., & Schlesinger, L. A. (2008, July/ August). Choosing strategies of change. *Harvard Business Review*, 2–8. doi:10.1007/978-1-349-20317-8_21

Koubova, V., & Buchko, A. A. (2013). Life-work balance. *Management Research Review, 36*(7), 700–719. doi:10.1108/MRR-05-2012-0115

Latane, B., Williams, K., & Harkins, S. (1979). Many hands make light the work: The causes of consequences of social loafing. *Journal of Personality and Social Psychology, 37*(6), 822–832. doi:10.1037//0022-3514.37.6.822

Lawshe, C.H. (1975). A quantitative approach to content validity. *Personnel Psychology, 28*, 563–575. doi:10.1111/j.1744-6570.1975.tb01393.x

Lee, P-L., & Pang, V. (2014). The influence of motivational orientations on academic achievement among working adults in continuing education. *International Journal of Training Research, 12*(1), 5–15. doi:10.5172/ijtr.2014.12.15

Lines, R. (2004). Influence of participation in strategic change: resistance, organizational commitment and change goal achievement. *Journal of Change Management, 4*(3), 193–215. doi:10/1080/1469701042000221696

Logue, N. C. (2017). Evaluating practice-based learning. *Journal of Nursing Education, 56*(3), 131–138. http://dx.doi.org.ezp.waldenulibrary.org/10.3928/01484834-20170222-03

Low oil prices cause pause, but not panic, in Fort McMurray. (2015, February). CTV News. Retrieved from http://www.ctvnews.ca/business/low-oil-prices-cause-pause-but-not-panic-in-fort-mcmurray-1.2216452

Loscocco, K. A. (1989). The instrumentally oriented factory worker: Myth or reality?. *Work and Occupations, 16*(1), 3–25. doi:10.1177/0730888489016001001

Macdougall, C., Epstein, M., & Highet, L. (2017). Continuing professional development: Putting the learner back at the centre. *Archives of Disease in Childhood. Education and Practice Edition, 102*(5), 249. Retrieved from http://dx.doi.org.ezp.waldenulibrary.org/10.1136/archdischild-2016-310864

Madsen, S. R., & Wilson, I. (2006). *The influence of Maslow's humanistic views on an employee's motivation to learn*. Paper presented at the Mountain Plains Management Conference, Orem, UT, October. Retrieved from http://works.bepress.com/susan_madsen/83

Martin, J. K., & Tuch, S.A. (1993). Black-white differences in the value of job rewards revisited. *Social Science Quarterly 74*(4), 884–901. doi:10.1037/0003-066X.59.1.29

Mayer, R. E. (2011). *Applying the science of learning*. Upper Saddle River, NJ: Pearson.

Mubanga, R., & Nyanhete, T. C. (2013). Institutional response to challenges faced by workers in balancing work and family responsibilities in a Zimbabwean university. *Public Administration Research, 2*(2), 201–209. doi:10.5539/par.v2n2p201

Nirodha, G. F., Amaratunga, D., & Haigh, R. (2014). The career advancement of the professional women in the UK construction industry. *Journal of Engineering, Design and Technology, 12*(1), 53–70. doi:10.1108/JEDT-04-2012-0018

Nunnaly, J. C., & Bernstein, I. H. (1994). *Psychometric theory*. Sydney, Australia: McGraw-Hill.

Omurtag, Y. (2009). What is engineering management? A new look at an old question. *Engineering Management Journal, 21*(4), 3–6. doi:10.1080/10429247.2009. 11431839

Orme, J. G., & Combs-Orme, T. (2009). *Multiple regression with discrete dependent variables*. New York, NY: Oxford University Press.

Patterson, L. (2016). Adjusting to the fall in commodity prices: One step at a time. *Bank of Canada*. Retrieved from http://www.bankofcanada.ca/2016/03/adjusting-fall-commodity-prices/

Rawson, K., Stahovich, T. F., & Mayer, R. E. (2016). Homework and achievement: Using Smartpen technology to find the connection. *Journal of Educational Psychology*, doi:10.1037/edu0000130

Reif, W. E. (1975). Intrinsic versus extrinsic rewards: Resolving the controversy. *Human Resource Management (Pre-1986), 14*(2), 2–10. doi:10.1002/hrm.3930140202

Rumelt, R. P. (1995). *Precis of inertia and transformation*. Retrieved from www.anderson.ucla. edu/faculty_pages/dick.rumelt/Docs/Papers/berkeley_precis.pdf

Saar, E., Täht, K., & Roosalu, T. (2014). Institutional barriers for adults' participation in higher education in thirteen European countries. *Higher Education, 68*(5), 691–710. doi:http://dx.doi.org/10.1007/s10734-014-9739-8

Safety authority. (2017). Retrieved from http://www.safetyauthority.ca/licences-certificates/exams-certificates/boiler#1st

Sapp, S. G., & Harrod, W. J. (1993). Reliability and validity of a brief version of Levenson's Locus of Control scale. *Psychological Reports, 72,* 539–550. Retrieved from http://www.soc.iastate.edu/sapp/soc512SappHarrod.pdf

Scott, W. R., & Davis, G. F. (2007). *Organizations and organizing*. Upper Saddle River, NJ: Prentice Hall.

Statistics Canada. (2011). Retrieved from http://www12.statcan.gc.ca/nhs-enm/2011

The Fort McMurray fire: What's happening now, and what you've missed. (2016, June). *The Globe and Mail.* Retrieved from http://www.theglobeandmail.com/ news/alberta/the-fort-mcmurray-disaster-read-the-latest-weekend/ article29930041/

The importance of pilot studies. (2001, Winter). *Social Research Update, 35* Retrieved from http://sru.soc.surrey.ac.uk/SRU35.html

The Institute of Power Engineers. (2017). Retrieved from http://www.nipe.ca/ index2.html

Thurasamy, R., Lo, M-C., Amri, A. Y., & ati Noor, N. (2011). An analysis of career advancement among engineers in manufacturing organizations. *International Journal of Commerce & Management, 21*(2), 143–157. doi:10.1108/ 10569211111144346

Tucker, D. A., Hendy, J., & Barlow, J. (2015). The importance of role sending in the sensemaking of change agent roles. *Journal of Health Organization and Management, 29*(7), 1047–1064. doi:10.1108/jhom-12-2013-0279

Tyagi, P. K. (2010). Expectancy theory and social loafing in marketing research group projects. *The Business Review, Cambridge, 14*(3), 22–27. Retrieved from http://www.jaabc.com/brc.html

Tuwei, J. G., Matelong, K. N., Boit, S. R., & Tallam, K. Z. (2013). Promotion opportunity on employee career change decision: The case of a selected learning institution in Kenya. *International Journal of Business and Management, 8*(18), 53–62. doi:10.5539/ijbm.v8n18p53

Vogt, P. R. (2007). *Quantitative research methods for professionals*. Boston, MA: Pearson.

Walker, J. T., & Madden, S. (2012). *Statistics in criminology and criminal justice*. Burlington, MA: Jones & Bartlett Learning.

Weiner, B. (1979). A theory of motivation for some classroom experiences. *Journal of Educational Psychology, 71*, 3–25. doi:10.1037/10788-000

Will, M. G. (2015). Successful organizational change through win-win. *Journal of Accounting & Organizational Change, 11*(2), 193–214. doi:10.1108jaoc-2013-0056

Willans, J., & Seary, K. (2011). I feel like I'm being hit from all directions: Enduring the bombardment as a mature-age learner returning to formal learning. *Australian Journal of Adult Learning, 51*(1), 119–142. Retrieved from http://files.eric.ed.gov/ fulltext/EJ951989.pdf

Working in Canada. (2012). *Stationary engineers and auxiliary equipment operators*. Retrieved from http://www.workingincanada.gc.ca/report-eng.do?area= 25566&lang=eng&noc=7351&action=final&ln=n&s=2&source=3

Yang, F. (2011). Work, motivation and personal characteristics: An in-depth study of six organizations in Ningbo. *Chinese Management Studies, 5*(3), 272–297. doi:10.1108/17506141111163363

Yarbrough, J. R. (2018). Adapting Adult Learning Theory to Support Innovative, Advanced, Online Learning -- WVMD Model. *Research in Higher Education Journal, 35*. Retrieved from https://search-ebscohost-com.proxy1.ncu.edu/login.aspx?direct=true&db=eric&AN=EJ1194405&site=eds-live

Yurdugul, H. (2008). *Minimum sample size for Cronbach's coefficient alpha: A Monte-Carlo study*. Hacettepe University Journal of Education, 35, 397-405. Retrieved from http://www.efdergi.hacettepe.edu.tr/yonetim/icerik/makaleler/571-published.pdf

Zeffane, R. (1995). Dynamics of strategic change: Critical issues in fostering positive organizational change. *Leadership & Organization Development Journal, 17*(7), 36–43. doi:10/1108/01437739610148376

Znidarsic, J. (2012). Continuous education of older employees: Cost or benefit?. *The International Business & Economics Research Journal (Online), 11*(8), 911. doi:10.19030/iber.v11i8.7168

Turcotte, K. A. (2015). Helping the adult learner succeed: How community college libraries in Massachusetts are serving this growing population. *Library Philosophy and Practice,* 0_1, 1-13. Retrieved from http://digitalcommons.unl.edu/libphilprac/1264/

About the authors

Clayton Mullen lives in Port Moody, British Columbia Canada and is employed in the Utilities sector. Dr. Mullen has interprovincial certification as a first class power engineer, an MBA (general), MSc (strategic planning), and a doctorate in business management with a dissertation focus on Canadian power engineering advancement.

Yohannes Mariam is an adjunct professor of economics and management at the University of Phoenix. Dr. Mariam holds a Ph.D. from McGill University, Montreal, Canada.

Contact details

Dr Clayton Mullen
University of Phoenix

Email: crmullen@telus.net

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Adult learners' needs in online and blended learning

Anh Nguyet Diep
Chang Zhu
Celine Cocquyt
Maurice De Greef
Minh Hien Vo
Tom Vanwing

Vrije Universiteit Brussel

Identifying and fulfilling adult learners' needs is critical to instructional designs aimed at enhancing their achievement and self-empowerment. In reviewing different theories and perspectives on adult learning and online and blended learning (OBL), it is noteworthy that there is not a comprehensive framework to guide the design of OBL environments that meet adult learners' needs, and that are underpinned by adult learning theories, online knowledge construction, motivational theories, and technological acceptance models. In this respect, the theory of existence, relatedness, and growth (ERG) (Alderfer, 1972) is applicable to interpret different types of needs to sustain learning motivation. Employing the ERG theory as the overarching framework, the purpose of this paper is to capture adult

learners' needs from both positivist and subjectivist perspectives. In other words, the identified needs are to help adult learners optimally perform the learning activities designed to achieve the learning goals on the one hand, and to sustain their motivation during the learning process on the other hand. Thus, the framework is helpful for practitioners, curriculum developers, and researchers who are in search of a theoretical background for both instructional design and empirical investigation.

Keywords: *online/blended learning, adult learners, learning needs*

Introduction

The conceptualisation and evaluation of adult learners' needs are crucial in designing learning environments (Isman, 2011). Fulfilling the needs of adult learners is more likely to bring about high-quality learning. While traditional learning environments have been gradually transformed into those of a technology-mediated nature, instructional designers and instructors of online and blended learning (OBL) are lacking a conceptual framework that underlines the needs of adult learners. In addressing the challenges adult educators encounter when it comes to teaching and learning in an OBL environment, Shea (2006) provides a pertinent account. The author postulates that efforts should be devoted to understanding 'how learning generally occurs; how it occurs among adult learners, and how it occurs in technology-mediated environments' (Shea, 2006, p. 20). Laurillard (2012) believes that learning theories have not changed to a great extent with the introduction of technologies. Different perspectives and theories such as experiential learning, inquiry learning, socio-constructivism, and more recently transformative learning still reserve a major role in explaining how learners acquire knowledge in formal settings (Laurillard, 2012). However, a significant contribution that technologies have made in the field of instructional design is that they have leveraged students' learning to a markedly higher cognitive level than traditional forms of teaching (McLoughlin, & Lee, 2008). Emerging technologies and learning platforms have allowed students access to learning resources in various formats, interactive tools for collaborative works, web-based activities, and scaffolding tools for information searches, self-

assessment, monitoring, receiving feedback and progress tracking (Laurillard, 2012). These functionalities offered by technology-mediated learning environments have changed the nature of students' learning, empowering them to be more self-directed learners. Such changes do not occur naturally, notwithstanding. Thus, a conceptual framework to understand adult learners' needs in an OBL environment is of significance. This is because instructional designers and instructors should know what they need from technologies before they can effectively use them for educational purposes. Otherwise, the teaching is more likely to risk being technologically driven, but not pedagogically driven (Laurillard, 2012).

Against this background, this paper reviews relevant theoretical and empirical research on adult learners' needs and proposes a model to conceptualise adult learners' needs, employing the existence, growth, and relatedness theory (ERG) (Alderfer, 1972) as the overarching framework. More specifically, we examine how adult learners' needs are defined from different perspectives, critically appraise existing frameworks and research on adult learners' needs, and synthesise these perspectives into one comprehensive framework guided by ERG theory (Alderfer, 1972).

Adult learners needs: definition and literature review

Learner needs: conceptualisation

The concept of learners' needs and learning are most prominent in adult education (Wiltshire, 1973). Boone, Safrit, and Jones (2002, cited in Ayers, 2011) mention that the failure of programs to address adult learners' immediate interests results in a lack of motivation. According to Ayers (2011), adult scholars expose certain concerns regarding adult learners' ability to adequately justify their learning needs. For example, adult learners may express 'trivial wants' rather than genuine needs (Archembault, 1957, cited in Ayers, 2011). By continually responding to adult learners' expressed needs, Ayers (2011, p. 3) cautions that instructional designers and instructors are acting with a 'customer service mentality'. Previously, Brookfield (1986) also shares this standpoint and warns that instructional designers may prevent adult learners from achieving essential learning goals if the program is so contingent on adult learners' specific needs. Ayers (2011)

argues that by maintaining that adult learners' needs should be filtered through the instructors' philosophical lens, Knowles (1984) has raised certain ambiguities concerning the role of instructional designers and instructors in defining learning needs.

Pearce (1995) proposes two major philosophical beliefs influencing educators' decision-making in curriculum development: positivist orientation (functional) and subjectivist orientation (empowerment). The positivist approach based on scientific empiricism translates learners' needs into assessable objectives and maintains that the goal of education is to help people to solve problems (Pearce, 1995). Thus, there is a distinction between genuine educational needs and learners' wants or desires (Pearce, 1995). A critique of empiricism is that educators are more likely to prescribe the learning needs, neglecting the centrality of learners' expressed needs (Pearce, 1995). Inversely, the subjectivist approach places emphasis on the empowering function of education; that is, to enable one to critically challenge the various powers and systems that affect their lives. Thus, practitioners following this paradigm consider needs as being socially constructed and think that all needs are real whether 'they are classified as needs, interests, wants, or desire' (Pearce, 1995, p. 409).

Knightley (2007) and Laurillard (2012) posit that learners enter formal education bringing with them emotional and intellectual characteristics as well as a mix of conceptions, skills, and motivation from prior learning experiences. Yet, these characteristics and conceptions are subject to change as learners participate in a learning environment designed to foster collaboration, critical thinking, independent learning, application of knowledge in real-life settings, reflection, and self-regulation (Laurillard, 2012). Laurillard (2012) argues that the role of formal learning is to help students acquire academic knowledge by effective pedagogy. This means that while capitalising on learners' prior learning experiences, it supports learners to move beyond their preferred learning styles and approaches. Thus, the consideration of learners' expressed needs, which should be aligned with instructional goals, is advocated (Laurillard, 2012). Put another way, Laurillard (2012) suggests that both subjectivist and positivist perspectives should be taken into account when defining adult learners' needs. Following this point of view, in this paper, we define adult learners' needs as those that motivate the learners and substantially enhance their learning,

the lack of which will lead to demotivation and failure to achieve major learning and personal goals. Thus, learning need identification is a subjective process and can be subject to change over time (Thampy, 2013), as well as being dependent on learners' characteristics. However, these needs should be carefully examined such that individual differences will not be sacrificed for the acquisition of required knowledge and skills as specified by the curriculum. In this sense, a positivist approach should come into effect.

A review of existing frameworks of learner needs in OBL design

Although researchers are still searching for a common framework and overarching theory of adult learning, they tend to agree on three marked points.

First, that knowledge should be socially constructed to yield more quality learning is a common discourse. Therefore, interactions with peers play an important role in the knowledge construction process. In this respect, the Community of Inquiry (CoI) (Garrison, Anderson, & Archer, 2000) is a prominent framework. Based on socio-constructivism, the model proposes that the process of constructing knowledge is collaborative and requires active participation on the part of the learners (cognitive presence) and meaningful learning activities design and facilitation from the instructors (teaching presence). Furthermore, an environment that fosters a sense of respect, support, and trust (social presence) should be strived for to help the learners feel connected to each other, which results in more comfort when sharing opinions. While the CoI is useful in guiding the design and facilitation of online learning activities, other principles of effective online pedagogy based on learning theories, motivation, and assessment should be integrated. Another related learning paradigm concerning online knowledge construction pioneered by Siemens (2005) is connectivism. Siemens views learning as a process of accumulating legitimate knowledge from a diverse blend of perspectives through 'social interaction, connection, and collaboration' (McLoughlin & Lee, 2008, p. 14). Nevertheless, according to Ryberg, Buus, and Georgsen (2012, p. 55), connectivism is more ascribed to learning in a 'complex variably tied and scaled networks' rather than a strongly tied community of mutually dependent learners following a course within a specific timeframe. Thus, connectivism mainly addresses how individuals build up knowledge

in a networked environment as a personal pursuit and fails to tackle issues of 'power, voice, access, and inclusion' (Hodgson, McConnell, & Dirckinck-Holmfeld, 2016, p. 293). Connectivism is closely connected with networked learning theory, which Harasim, Hiltz, Teles, and Turoff (1995) propose as the new learning paradigm given the advancement of educational technologies. Emphasising that learners should be involved in collaborative dialogues, and maintaining that knowledge emerges rather than being prescribed through the negotiations between learners in the networks, distinguishes networked learning from connectivism (Nielsen, & Danielsen, 2012). On the part of the learners, Hodgson et al. (2012) suggest that self-determination during the learning process and striving to establish an identity while collaboratively constructing knowledge with peers are important. Thus, in order to be actively engaged, learners are expected to either demonstrate or be supported to develop a number of skills such as digital and critical literacies (Downes, 2014; Littlejohn, Beetham, & McGill, 2012). Yet, with a strong focus on how learning takes place in technology-supported environments by collaboration and reflective dialogues, connectivism and networked learning theorists have not clearly specified how learners' motivational processes can be supported (Hall, 2008). The idea that individuals should participate in the discourses of a learning community in order to construct knowledge is similar to what Lave and Wenger (1991) term as communities of practice. The contribution of networked learning theory is the epistemic belief concerning the concept of self-constructed and emerged knowledge, which responds to the three types of affordances provided by the web: communications, information abundance, and net-based agents (e.g. search engines) (Anderson, & Whitelock, 2004). However, the two learning theories fail to address the role of the learning environment, of which the instructors' facilitation, and the cognitive and affective contribution from the online communities are exemplary. In this respect, it is worthwhile to refer to Bandura's (1986) social cognitive theory. Social cognitive theory maintains that individuals' learning or behaviours can be affected by their cognitive perceptions when interacting with the environment. For example, the feedback that learners receive from the instructors or peers, or the observation that others have been successful in a learning task can make them feel more efficacious, and subsequently modify their learning strategies to attain the expected learning outcomes. Therefore, to be useful as a theoretical lens for instructional design, cognitive and

motivational processes that have been addressed in earlier works such as socio-constructivism (Vygotsky, 1978) and social cognitive theory (Bandura, 1986) should be taken into account. OBL instructional designers can take a different perspective when one learning theory does not suffice. This perspective should necessarily take adult learners' needs as a starting point, and consequently, strategies to advance these needs should have theoretical underpinnings.

Second, while adults are portrayed as self-directed learners, coherent and clear presentation of the course goals, structures, and subject matter content is of crucial importance because this results in a feeling of safety (Milheim, 2012; Philips, Baltzer, Filoon, & Whitley, 2017). Any confusion regarding the expectations and deadlines of certain course works will affect the self-directed learning of adults. In this respect, Ryberg et al. (2012) postulates that the pedagogical values drawn from behaviourism, which necessitates carefully planned intended outcomes linked to instructional strategies, are still relevant. While factors related to course organisation and structures may influence adult learners' self-directed learning, there are others related to motivating and scaffolding strategies on the part of the instructors that have not been covered in behaviourism. This specifies the inclusion of both motivation theories and learning theories; for example, constructivism (Bruner, 1986) to adequately support the self-directed learning of adults.

Third, a large body of research (Jarvis, 2007; Mezirow, 2000; Ross-Gordon, 2003) supports that the learning of adults should be different from that of high school students. Most adult learners return to school after a certain time, carrying with them rich resources of experiences and perspectives that are well established. This is one of the critical factors differentiating adults from high school students or traditional learners at college who may not have had the opportunities to accumulate or be exposed to professional resources. Therefore, the learning of adults should be transformative (Mezirow, 2000; Taylor, 2008); that is, to internalise new knowledge and theories: adults' prior experiences and former perspectives should serve as the 'frame of references' to investigate the legitimacy of the newly introduced theories/knowledge. Thus, providing learners with opportunities to exercise reflection; that is, 'activity in which people recapture their experience, think about it, mull it over and evaluate it' (Boud, Keogh, & Walker, 1985, p. 33) by offering ill-structured problems to solve or

exposing learners to varied perspectives is highly recommended. In OBL, these opportunities can manifest in the assignments given, but this is not sufficient. For reflection to occur, instructors' facilitation of these reflective discourses is crucial. Put another way, adult learners have a substantial need of instructors' support for reflective learning or transformative learning to be realised, which is viewed as the highest level of reflective learning (Moon, 1999).

The construction of a conceptual framework of adult learners' needs in OBL

An overview of the major frameworks guiding OBL instructional design shows that one framework does not suffice for a reflection of pedagogical practices intended to meet adult learners' needs. Each framework has its own strengths. For example, the CoI (Garrison et al., 2000) should be the first to mention for facilitating constructive online discourses. Meanwhile, researchers (Asoodar, Vaezi, & Izanloo, 2016; Venkatesh, Thong, & Xu, 2012) have increasingly pointed to prominent features of the learning management systems (LMSs); for example, perceived ease of use, perceived usefulness, and course flexibility, as prerequisites for enhancing the learning experience and learners' satisfaction. Thus, it will be a limitation not to include aspects of the technologies employed during the learning process as one of the primary needs of the adult learners' needs framework. This is because learners may have different levels of computer and Internet self-efficacy (Chu, 2010). This means that the need for technical support to sufficiently perform their learning in the online platform should also be addressed. Furthermore, it is believed that other aspects of individual differences, motivation, and assessment should bear equal importance in instructional design; that is, a synthesis of different learning, motivation, and technological acceptance theories should be examined together. In doing so, we can adequately resolve aspects of access and inclusion raised by Hodgson et al. (2016). Therefore, it is suggested that instead of asking 'How to best design an OBL learning environment?', we should alternatively address the question of 'What do adult learners need in order to better perform in an OBL environment?' to guide the OBL instructional design.

Following the conceptualisation of adult learners' need, it is important to identify the different types of motivation that adult learners bring with them when enrolling in a certain course or program. Additionally, we should understand the barriers or difficulties that prevent them from

achieving both their academic and personal goals. In doing so, a more in-depth understanding of adult learners' needs and input to address these needs in an OBL environment can be unravelled.

From a motivational perspective, Knowles (1984) suggests that adult learners are more motivated to learn if the content is relevant to their goals and has an immediacy of application. Due to their maturity, adult learners are characterised as being autonomous and self-directed learners who prefer to make decisions for their own learning. Concerning this, Knowles' two regarding adult learners' preference for relevance to life-situations and autonomy fit nicely with principles of constructivism (Huang, 2002) and self-determination theory (Ryan, & Deci, 2000). The former emphasises that instructional design should create a relevant learning environment to support the learners' knowledge construction process whereas the latter entails a necessity to enable learners to take ownership of their learning.

As to the self-directedness, some researchers (Cercone, 2008), do not share Knowles' assumption that all adult learners are self-directed Day, Lovato, Tull, and Ross-Gordon (2011) also find that adult learners should be provided with structure to comfortably and effectively organise their learning. Research has shown that self-directedness is recognised as a skill that should be practiced and fostered by instructional design with the instructors' direct guidance fading over time (Alotaibi, 2016; Grow, 1991). More specifically, Alotaibi (2016) suggests that clear goals and assessment standards as well as appropriate strategies to foster learners' independence over time should be incorporated in the instructional design. Thus, adult learners are not self-directed per se, but they need to be provided with conditions to exercise this important skill to be academically successful. Instructional design can support this goal by emphasising learners' need for structure; for example, knowing how the course is organised, and of process support. The latter is analogous to the need for competence from self-determination theory (Ryan, & Deci, 2000), wherein the learners need to be supported to perceive a feeling of efficacy to trigger their intrinsic motivation. In an OBL setting, this process support is realised in terms of individual learner support by means of the instructor's feedback and scaffolding, and by interacting and working collaboratively with other learners, harnessed by interactive technologies.

Regarding the process of online interaction with peers for purposes of (co) construction of knowledge, the affordances of technologies, the facilitation from the instructors as shown by the CoI framework, the perceived sense of belonging and norms of reciprocity (Diep, Cocquyt, Zhu, & Vanwing, 2016) all have a role to play. As for the affordances of technologies, researchers like Parchoma (2014) calls for a need to conceptualise the concept. While Laurillard (2012) recommends that pedagogy should specify how technologies would be used, Dohn (2009, p. 169) complements this proposition by calling for the consideration of learners' experience, technological skills, and culture if the instructional designers and instructors are to 'design real learning environments for and empirically understand the interactions of – real users whose skills develop and possibilities increase as they experience gains'. Supporting this view, Jones (2015, p. 227) argues that technological affordance 'only becomes affordances in relation to the user'. In other words, to enhance the affordances of technologies regarding adults' learning processes, the instructors and designers of the course/program should make the technologies easy to use as specified by technologies acceptance models on the one hand, and provide adequate support to enhance learners' self-efficacy in using the technological tools on the other hand.

As can be seen, to design an OBL learning environment that takes into account adult learners' needs, different learning theories (for example, andragogy, constructivism and socio-constructivism), motivation theory (self-determination theory), self-directed learning theory, technology acceptance models and technological affordance concepts have an important role to play. Thus, to cover these perspectives in a concise but expandable framework will be worthwhile to guide OBL designs. Attempting to achieve this goal, Milheim (2012), based on Maslow's hierarchy of human needs, namely physiology, safety, relationships, self-esteem, and self-actualisation, suggests different strategies OBL instructional designers and instructors can apply to meet learners' needs. While Milheim (2012) has contributed by elaborating different types of needs, the author mainly appeals for the provision of material, rather than addressing how the content matters, especially for adult learners' needs. In addition, at different levels of needs, information and communication (ICT) tools seem to be present in more than one category, which makes it difficult to interpret it as a learner needs' framework or an instructional framework to respond to learners' needs. In addition, Abela (2009)

postulates that Maslow's needs typology may be too rigid and hence result in the overlapping of the categories. For example, Milheim (2012) identifies that the provision of a checklist of essential items should be obtained as a physiological need and pre-course preparation as a safety need. These two can be subsumed in both categories.

Given these limitations, ERG theory (Alderfer, 1972) reclassifies human needs into three categories, and can be employed as a promising alternative framework to the Maslow's need hierarchy. At the lower end of the need hierarchy is existence, in which Maslow's physiology and safety needs register (Abela, 2009). Needs for interpersonal relationships resemble 'relatedness', and similarly, needs for self-actualisation and self-esteem share the essence of personal desire for 'growth' (Abela, 2009).

Contrasting with the conceptualisation of adult learners' needs, ERG theory is capable of demonstrating how OBL can be designed to support adult learners' motivational and cognitive processes, as well as providing a favourable technology-supported learning environment to augment the knowledge construction process.

In respect of adults' learning motivation, ERG theory is more applicable to interpret different types of motivation. On the one hand, the motivation to equip oneself with new knowledge and competences either for one's own cognitive interest or professional advancement is matched with the needs of personal growth in the ERG model. Based on andragogy assumptions (Knowles, 1984), self-determination theory (Ryan, & Deci, 2000), constructivism, as well as self-directed learning, we propose three elements subsumed under this dimension, namely autonomy, relevance, and competence, respectively. On the other hand, the motivation of building up new social relationships and relief from daily routines (Boshier, 1991) are aligned with the dimension of 'relatedness'. Viewed from a social inclusion perspective, ERG theory also supports the interpretation of how participating in educational programs can enhance the two essential dimensions of social inclusion as proposed by De Greef, Segers, and Verté (2012), namely connections and self-activation.

The second category of adult learners' need, namely 'relatedness', consists of the need to interact with peers online (peer online interaction), facilitation from the instructors, and a sense of belonging

to the classroom community. This dimension, therefore, embraces literature in online knowledge construction and socio-constructivism.

The third dimension of adult learners' needs 'existence', concerns the physical and technical conditions that help them better organise their self-directed learning and perform online learning activities. This dimension addresses the physical obstacles that adult learners may encounter in an OBL environment. Thus, transparency in learning goals and assessment, aspects of system functionalities such as ease of use and technical support, make up this category of adult learners' needs.

The three dimensions of adult learners' needs along with their constituents are presented in Figure 1. At the heart of the framework are adult learners and it is suggested that when addressing their needs, input variables such as socio-demographics and motivational orientations are important elements to take into account. Viewed from the inside, the first layer of the framework represents the 'existence' needs. The second layer demonstrates the needs for 'relatedness', and the third the needs for (personal) 'growth'.

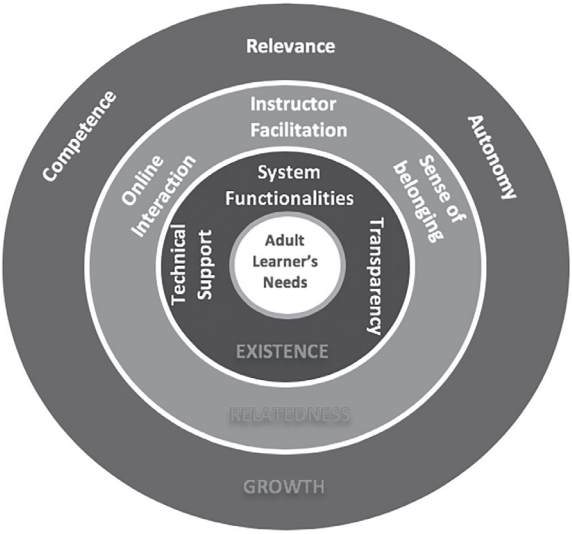


Figure 1. A conceptual framework for adult learners' needs in OBL based on the ERG theory

In the following section, different elements of adult learners' needs, according to each layer underpinned by relevant theoretical and empirical findings, will be elaborated.

Existence needs

When adult learners start an OBL program, it is important that they are informed about what is expected of them as learners and, more importantly, are provided with optimal physical conditions to learn. This signifies the existence need, defined as the need for being informed about expectations as well as being able to comfortably perform one's learning activities in the OBL environment. The former enhances one's feeling of safety in terms of being informed and reduces any confusion that may occur. The latter helps to alleviate adult learners' anxiety with using technology, especially novice learners, and to enable them to harness ICT to achieve their learning outcomes.

Transparency

Based on Maslow' hierarchy of human needs, Milheim (2012) highlights that feelings of safety in terms of transparency in assessment and expectation are crucial, which echoes other findings. For example, Poll, Widen, and Weller (2014) and Dixon (2014) maintain that articulating clear learning goals and outcome expectations from the beginning is one of the most important factors to help increase retention. Clear expectations in terms of assessment will help clarify how learner contributions to different online learning activities are recognised and credited (Pelz, 2010). In other words, it provides a raison d'etre for the investment of effort in both individual and collaborative learning activities, given the limited time adults can reserve for learning. This is significant because while the learning itself normally intrinsically motivates adult learners, they are also goal-oriented, viewing time as 'left' rather than 'passed by' (Knowles, 1984). Clear expectations in assessment will not only guide the learning process but will also help to show how different types of learning goals can be achieved and evaluated. From a social cognitive perspective, clear goals and expectations can facilitate learning because they help learners to evaluate their progress and they motivate learners to invest the effort to achieve or address any problems with their achievement (Locke, & Latham, 2002).

System functionalities

When classroom instructions have been augmented and, in some cases, replaced by technologies, the functionalities of the technologies; for example, web-based applications or learning management systems (LMS), receive substantial attention from course designers. Educational researchers have widely adopted the theory of planned behaviour and technology acceptance models as the overarching frameworks that explain learners' intention and actual use of technology (Park, 2009; Wu, Tennyson, & Hsia, 2010). Chang et al (2015) have reviewed the features of technology-supported learning environments most valued by learners and found that the two dimensions; that is, perceived usefulness and perceived ease of use, are the most important features that have been confirmed. These are also the two factors incorporated in the two prominent technology acceptance models, namely the Technological Acceptance Model (TAM) (Davis, 1989) and the Unified Theory of Acceptance and Usage of Technology (UTAUT) (Venkatesh et al., 2012).

Technical support

A recent study from Asoodar et al. (2016) helps further validate the role of perceived ease of use and perceived usefulness regarding the technological dimension. One of the contributions of Asoodar et al. (2016) is that the authors have found that factors related to learners, such as attitudes towards online courses, and computer and Internet anxiety, do not uphold their significant roles in yielding a pleasant learning experience. The authors attribute this non-significance of learner-related constructs to the availability of institutional support and instructors' technological competence and guidance. Recent findings in literature also support the perspective that instructors' support in terms of technology is necessary for student learning. For example, Diep, Zhu, Struyven, and Blieck (2017), and Hung and Chou (2015) find that instructors are expected to maintain a role of technology facilitator in an OBL environment. This is because the instructors' technology competence has a positive effect on the students' attitude towards the course. In other words, knowing that the instructors will promptly solve technological issues will reduce learners' computer anxiety and reinforce their confidence in using ICT to achieve their learning goals.

In addition to the support that helps the learners easily manipulate the online tools, it is also important that the instructional designers and instructors should pay attention to help learners to develop digital literacy, that is:

> *'[T] he awareness, attitude and ability of individuals to appropriately use digital tools and facilities to identify, access, manage, integrate, evaluate and synthesise digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process"*
>
> (Martin, 2006, p. 155)

As a result, they can responsibly and critically use the online learning resources for learning purposes. This is because recent literature reveals that the assumption that the new generation of learners; that is, those who were born after 1984, are digital natives may not necessarily hold true. Kirschner and De Bruyckere (2017) report from their synthesis of literature that despite being exposed to modern technologies, the capacity to use these intensively for academic purposes is still limited. Therefore, the instructors remain facilitators for learners' development of digital literacy. When digital literacy is at a high level, learners' self-efficacy increases accordingly, which in turn motivates them to be more active in online interaction (Prior, Mazanov, Meacheam, Heaslip, & Hanson, 2016).

To equip adult learners with sufficient conditions to effectively perform online learning activities, the three types of learners' existence needs should be made available. These include transparency, instructors' technical support, and system functionalities, that is, perceived ease of use and perceived usefulness.

Relatedness needs

The 'relatedness' need in ERG theory emphasises interpersonal and social relationships. This is in line with the dimension of extrinsic motivation of expanding one's social networks (Boshier, 1991), and the literature on online knowledge construction (Hrastinski, 2009).

Sense of belonging

Bransford, Brown, and Cocking (2000) postulate that online instructional design should emphasise the establishment of a community that underlines mutual trust and respect. Knowles (1984) and Cercone (2008) similarly suggest that a collaborative and respectful learning climate should be fostered in alignment with adult learners' preferences. This perspective coincides with Mahan and Stein's (2014) premise of effective teaching practice for adults, which states that for adult learners to learn best, the affective aspect of the learning environment should not be neglected. Empirically, there are a number of studies that capture this affective dimension as reviewed by Chang et al. (2015). For example, Chang and Chuang (2011), Koul, Fisher, and Shaw (2011), Newhouse (2001), and Diep, Cocquyt, Zhu, and Vanwing (2017) validate that sense of community, trust, identification, and affiliation are significant social and affective factors proven to facilitate more engagement, mutual support, collaboration, and relationship building among learners. While existing under different names, we propose that these constructs can be subsumed under the term 'sense of belonging' for its broad coverage, as defined by McMillan and Chavis (1986). The authors refer to sense of belonging as 'the feeling, belief, and expectation that one fits in the group and has a place there, a feeling of acceptance by the group, and willingness to sacrifice for the group' (McMillan, & Chavis, 1986, p. 10).

Online interaction (with peers)

Whereas the sense of belonging addresses the affective aspect of the online learning community, the need to interact with other peers and the instructors is undoubtedly integral to one's learning. Rooted in socio-constructivism (Vygotsky, 1978), the online interactions among the learners themselves have received substantial attention from both theoretical and empirical studies. One of the most influential frameworks on learners' interaction is the CoI (Garrison et al., 2000). The authors postulate that for high quality learning to occur, the instructors should create opportunities for online collaboration and interaction and pay attention to facilitating these online discourses so that high levels of cognitive presence can be fostered. It is through this process that learners can have opportunities to legitimately participate

in a knowledge community (Lave, & Wenger, 1991), which is also the tenet stressed in recent learning paradigms such as connectivism (Siemens, 2005) and networked learning (Anderson, 2010). In addition, Laurillard (2012) strongly supports that peer interaction should be the core element in OBL design because it is through this process that learners can obtain internal (self) or external (peer) feedback for their performance and understanding.

Instructors' facilitation

Laurillard (2012) and the authors of the CoI (Garrison et al., 2000) as well as findings from a great number of studies on online interaction, share the perspective that facilitation from the instructors concerning learners' online interaction is necessary. This is because, without such facilitation, the interactions among learners are more likely to be socially centred or deviate from the topics under discussion. By the same token, Schaap, van de Schaaf, and Bruijn (2016) assert that for discussions to be more intense and reflective, the instructors' strategies in terms of conceptual and metacognitive interventions should be intentional and preferably explicit. From a student perspective, the need to interact with peers and the preference for the instructors' presence, guidance, and facilitation of online discussion are also confirmed in the works of Asoodar et al. (2016) and Hsieh and Tsai (2012). More specifically, facilitation strategies such as directing learners towards the topic, supporting the learners in preparing arguments, giving feedback, and helping to sustain the online discussion, have demonstrated to be effective in enhancing the quality of learner–learner interaction (Hsieh, & Tsai, 2012).

Thus, we propose that to help learners feel more engaged, better achieve their learning goals, and further establish and reinforce social relationship with peers, their relatedness needs of feeling belonged to the classroom community, interactions and collaboration with peers, and facilitation from the instructors should be underlined.

Growth needs

Adult learners have different types of motivation, which can be summarised as intrinsic –for one's own cognitive interest, and extrinsic – for qualifications, employability enhancement, professional advancement,

and external pressure such as sustaining unemployment benefits (Boshier, 1991). Irrespective of the types of motivation adult learners may initially bring along with them, these types of motivation are subject to change due to the learning environment. For example, a learner may start with an extrinsic motivation of obtaining a qualification, but this may change to an intrinsic one if he/she finds that the learning is relevant, and is substantially supported to become more actively engaged and has ownership of his/her own learning. Conversely, a learner starting with an ideally intrinsic motivation may be disappointed due to high expectations as to what the course/program can offer. This is to say, adult learners need to be supported to satisfy the 'intrinsic individual desire for personal growth' (Abela, 2009, p. 12) by instructional approaches that help them sustain intrinsic motivation to learn the course through. In this respect, self-determination theory (Ryan, & Deci, 2000) is a relevant theory. Self-determination theory postulates that learners will be intrinsically motivated to learn if their needs of autonomy and competence are satisfied (Niemiec, & Ryan, 2009). Cercone (2008) and Knowles (1984) share the opinion that due to their characteristics, namely being more professional and problem-orientated with a rich reservoir of lived experiences, adult learners have a strong desire for learning content that is relevant and immediately applicable. Consequently, they have a strong need for relevance in terms of the presented knowledge. In other words, to cater for the needs of personal growth and support the motivation to pursue this goal in the long run, autonomy in one's learning, support for competence development, and the provision of relevant learning content should be in place.

Autonomy

From a self-determination perspective, autonomy refers to 'the experience of behaviour as volitional and reflectively self-endorsed' (Niemiec, & Ryan, 2009, p. 135). This perspective entails that the instructional designers and instructors should align learning activities with the learners' needs and learning goals. These are informed by an understanding of the learners' prior knowledge, skills, and their epistemic beliefs (Bransford et al., 2000). Applying this perspective in adult education, a great number of studies draw on adult learners' characteristics and discuss implications for online learning practices. The researchers insist that adult learners should be

afforded the opportunities to take ownership of their studies, namely respect for learner autonomy or diverse talents and ways of learning (Bangert, 2004; Ross-Gordon, 2003; Walker, & Fraser, 2005). This is in resonance with learning theories such as socio-constructivism (Vygotsky, 1978) and andragogy (Knowles, 1984), both of which underline the importance of prior knowledge and a humanistic approach in teaching and learning. In addition, by paying attention to adult learners' differences in learning styles, prior-accumulated knowledge and living experiences, the instructional designers and instructors have addressed what Milheim (2012) terms self-actualisation needs; that is, helping learners to fulfil their learning goals and aspirations through a facilitated approach. Adequately addressing diverse ways of learning or individual differences is considered to be crucial in emphasising the need of autonomy in adults' learning.

Competence

The need for competence means that adult learners should be enabled and supported in such a way that they perceive certain behaviours or learning goals as 'effectively enacted' or as being attainable (Niemiec, & Ryan, 2009, p. 135). For competence to be enhanced, learners need to have access to feedback that helps them improve their learning, experience a feeling of efficacy (Bandura, 1986), or be able to achieve the learning goals at hand (Niemiec, & Ryan, 2009). Additionally, learners need to be cognitively challenged by learning activities that help them to test and go beyond their academic capacities. Thus, feedback and learning activities that have a formative nature are necessary to support learners' competence.

Ausburn (2004), Cercone (2008) and Mupinga, Nora and Yaw (2006) postulate that while being expected to be independent regarding their learning, adults also need scaffolding, which can be presented in the form of instructors' timely feedback on assignments, in order to clarify confusion, reduce anxiety and move on to higher levels of cognition. Bandura (1986) maintains that in addition to goal setting, feedback on the extent to which a goal has been achieved will possibly reinforce learners' self-efficacy, which subsequently triggers their self-regulatory process or self-directed learning (Zimmerman, & Martinez-Pons, 1990; Zimmerman, 2000). This view has been supported by empirical findings such that instructors' feedback in a timely manner at classroom and

individual levels is a significant predictor of both learning outcomes and satisfaction (Asoodar et al., 2016). With the affordances of interactive web-technologies, it is believed that instructors have more options to offer feedback for learners to realise their strengths and weaknesses concerning the learning objectives, hence better facilitating adults' learning.

Laurillard (2012, p. 69) suggests that the online learning environment should provide opportunities for formative assessment on a regular basis to 'make students' thinking available to themselves, their peers, and their instructors'. In doing so, the instructors will have a grasp of the students' progress and their current understanding of the topic under discussion, hence enabling them to provide further support and scaffolding to help the learners achieve the goals. In addition, by making their thinking visible, learners can also receive intrinsic feedback, a term coined by Laurillard (2012); that is obtained by contrasting their articulations of understanding against those from the learning environment or from peers. In this way, the learners can re-formulate and modify their conceptualisation. In the same vein, Bransford et al. (2000) and Boud (2000) advocate the use of formative assessment to augment the learning process and prepare learners to be capable of formulating the formative assessment for their own work. These formative assessments or assessment for learning can manifest in the forms of reflective journals, e-portfolios (Mason, Pegler, & Weller, 2004), opportunities to reflect on the learning content and experiences in the form of a blog, and instructors' monitoring of students' feelings and active participation. Thus, it is recommended that for learners to better learn from assessment, the instructors should implement different approaches to make explicit the progress that learners have made. Therefore, formative assessment incorporated in diverse assessment methods is the one critical element that should be emphasised. In doing so, the learning of adults is likely to become more reflective, which echoes principles of transformative learning (Mezirow, 2000).

Relevance

The instructional designers and instructors' decisions concerning the learning content should be based on the analysis of how important and relevant certain concepts and skills are based on the learners' needs. This perspective is strongly reflected in andragogy (Knowles, 1984), constructivism (Huang, 2002; Jonassen, 1991), and socio-

constructivism (Vygotsky, 1978). The constructivist perspective posits that learning activities should be based on learners' prior experiences and should provide opportunities to integrate these experiences when attempting to acquire new knowledge (Jonassen, 1991). Viewing knowledge construction as a process of meaning-making, socio-constructivists endorse that learners should be engaged in meaningful interactions, which include 'responding, negotiating internally and socially, arguing against points, adding to evolving ideas, and offering alternative perspectives with one another while solving some real tasks (Woo, & Reeves, 2007, p. 19). In an online learning environment, Reeves, Herrington, and Oliver (2002) propose that learning activities should be authentic in nature to promote meaningful interactions. These learning tasks should: (1) have a relevance to learners' real-life experience; (2) be ill-structured and complex enough to trigger extended discussions and multi-perspective solutions; and (3) result in outcomes or products valuable to the learners per se (Reeves et al., 2002). In the same vein, Mahan and Stein (2014, p. 143) suggest that 'adults learn best when they integrate learning to the rest of their lives'.

Therefore, while online interactions with peers is important to construct knowledge in OBL, the nature of the learning content and tasks should be designed in such a way that is relevant to the lived experience of the adult learners.

Discussion

In reviewing different instructional frameworks related to OBL design, adult learning theories, motivation theories, technology acceptance models, and empirical studies addressing adults' learning needs and preferences, we have proposed and constructed in this paper a conceptual framework that incorporates the most relevant findings on the learning needs of adults in OBL environments.

By dividing the learning needs into three categories, namely 'existence', 'relatedness', and 'growth', the paper aims to capture more nuanced learning needs from an adult learner's perspective. Employing ERG theory as the overarching framework, the three dimensions of needs in this conceptual framework attempt to capture adult learners' needs from both positivist and subjectivist perspectives. In other words, the needs identified are to help adult learners optimally perform the learning

activities designed to achieve the learning goals on the one hand and to sustain their motivation during the learning process on the other hand. To address the former objective, the framework relies on adult learning theory, namely andragogy (Knowles, 1984), and technology acceptance models (Davis, 1989; Venkatesh et al., 2012) as well as (online) learning theories and frameworks; for example, connectivism (Siemens, 2005), networked learning (Nielsen, & Danielsen, 2012), social-constructivism, and the CoI (Garrison et al., 2000). These frameworks have scrutinised different aspects of adult learning and in this paper they are put together to provide a more comprehensive framework for the recognition of adult learners' needs in OBL. For example, the perceived ease of use in the TAM (Davis, 1989) has been incorporated to cater for adults' need to feel at ease (existence need) navigating the online learning platform while instructors' facilitation and online interaction with peers in the CoI have been included to respond to the need of 'relatedness'. Using self-determination theory (Ryan, & Deci, 2000) and andragogy as the two main theories to foster and sustain adult learners' motivation, the framework has tapped into adult learners' need for 'growth', namely cognitive and personal development. This dimension necessitates instructional design to pay attention to adult learners' ownership of learning or autonomy and provide both the environment and scaffolding in the form of feedback; for example, to help adult learners build up the competence for themselves.

It is acknowledged that the elements subscribed under each category are not all-inclusive. As McLoughlin and Lee (2008) remark, additional elements can be added when instructional designers and instructors are better informed about other social and contextual factors related to adults and their learning; for example, the learners' digital competences and socio-demographics, their expectations, or the new affordances of web technologies. Nevertheless, by comparing different frameworks and their complementary features, the proposed framework in this paper has taken into account the most important aspects of adults' learning needs that can serve as both a reference for instructional design and render more discourses in terms of refining our knowledge of how adults learn in an OBL environment.

As for future works, we propose that the framework can be validated by both qualitative and quantitative approaches, taking into account different stakeholders' perspectives, first and foremost the instructors and the adult learners who are key actors in the teaching and learning process.

For example, a qualitative study employing the Delphi method (Linstone, & Turoff, 1975), consisting of a consensus on the indicators of each dimension of adult learners' needs from a group of stakeholders such as instructors, program coordinators, curriculum developers, and learners, is worthwhile to refine the framework. More importantly, as informed by the researchers, there are individual differences on the part of the adult learners that should receive research attention in terms of the framework validation. For example, Ke and Kwak (2013) find that the older learners place more value and have a greater need of online participation than their younger peers. Thus, age can be a variable expected to affect the perception of needs in the 'relatedness' dimension, which needs to be addressed. Additionally, for adult learners who display greater readiness for online learning, chances are that their needs in terms of instructor's support for technical issues will be the least compared to others. In other words, we recommend that socio-demographics and learners' characteristics deemed crucial to online learning should be included to subsequently justify the framework.

With regard to the relationships among the three dimensions of needs, Alderfer (1969) proposes that there is either a regression or a progression mechanism in effect. The former indicates that once a higher level of needs; for example, growth is not satisfied, individuals will seek more gratification from the lower needs, which is relatedness in this case. The latter maintains that once lower levels of needs; for example, relatedness are satisfied, individuals will desire satisfaction of higher level needs; that is, growth. Based on adult learning theories and online knowledge construction literature, we are more inclined to adopt the second view: lower levels of needs including 'existence' and 'relatedness' should be fulfilled to support the achievement of 'growth' needs. Thus, we propose that these two layers should be viewed as facilitating rather than competing with each other. These relationships can be tested by path analyses to confirm and enrich our understanding of how these dimensions of adult learners' need are related to one another, which is subsequently useful for OBL instructional design.

It is plausible to maintain that when different dimensions of learning needs have been thoroughly met, then outcomes other than academic achievement can be obtained. For example, researchers have found that the more intensively one participates online, the more social capital he/she can establish (Steinfield, Ellison, & Lampe, 2008; Zhong, 2011). Therefore, it is worth using both the learning outcome and social outcomes; for example,

social capital, as the response variables to test how much the variation can be accounted for by different dimensions of adult learners' needs.

Conclusion

If adult education is to fulfil both educational and societal goals, adult learners' needs should be the first to be addressed. To achieve these goals, 'the creativity and energy of the instructional designers and course instructors' (Johnson, & Aragon, 2003, p. 42) are the critical drivers, not the technology (McLoughlin, & Lee, 2008). In this process of instructional design, it is crucial to understand what motivates and facilitates adult learners to fully engage in the collaborative learning process and their self-directed learning while minimising those technological barriers that may interfere with their online participation. In this light, the proposed framework of adult learners' needs in an OBL environment, based on ERG theory (Alderfer, 1972), is useful because it helps to deconstruct these motivators and facilitators into specific elements underpinned by both theoretical and empirical findings in the scope of adult learning, motivational theories, online learning theories, and technological acceptance models.

Reference

Abela, J. (2009). Adult learning theories and medical education: A review. *Malta Medical Journal, 21*(1), 11–18.

Alderfer, C.P. (1969). An empirical test of a new theory of human needs. *Organizational behavior and human performance, 4*(2), 142–175.

Alderfer, C.P. (1972). *Existence, relatedness, and growth: Human needs in organizational settings,* New York: The Free Press.

Alotaibi, K.N. (2016). The learning environment as a mediating variable between self-directed learning readiness and academic performance of a sample of Saudi nursing and medical emergency student. *Nurse education today, 36,* 249–254.

Anderson, T. (2010). Theories for learning with emerging technologies. In G. Veletsianos (Ed.), *Emerging technologies in distance education*. Edmonton: Athabasca University Press.

Anderson, T., & Whitelock, D. (2004). The educational semantic web: Visioning and practicing the future of education. *Journal of interactive Media in Education, 2004*(1).

Asoodar, M., Vaezi, S., & Izanloo, B. (2016). Framework to improve e-learner satisfaction and further strengthen e-learning implementation. *Computers in Human Behavior, 63,* 704–716.

Ausburn, L.J. (2004). Course design elements most valued by adult learners in blended online education environments: An American perspective. *Educational Media International, 41*(4), 327–337.

Ayers, D.F. (2011). A critical realist orientation to learner needs. *Adult Education Quarterly, 61*(4), 341–357.

Bandura, A. (1986). The explanatory and predictive scope of self-efficacy theory. *Journal of social and clinical psychology, 4*(3), 359–373.

Bangert, A.W. (2004). The seven principles of good practice: A framework for evaluating on-line teaching. *The Internet and Higher Education, 7*(3), 217–232.

Boshier, R. (1991). Psychometric properties of the alternative form of the education participation scale. *Adult Education Quarterly, 41*(3), 150–167.

Boud, D., 2000. Sustainable assessment: rethinking assessment for the learning society. *Studies in continuing education, 22*(2), 151–167.

Boud, D., Keogh, R., & Walker, D. (1985). What is reflection in learning? in D.Boud, R.Keogh, & D.Walker (Eds) *Reflection: Turning experience into learning*, London: Kogan Page, 7–17.

Bransford, J.D., Brown, A.L., & Cocking, R.R. (2000). *How people learn*, Washington DC: National Academy Press.

Brookfield, S. (1986). *Understanding and facilitating adult learning: A comprehensive analysis of principles and effective practices*, McGraw-Hill Education (UK).

Bruner, J. (1986). *Actual minds*. Possible Worlds, Cambridge MA: Harvard University Press.

Cercone, K. (2008). Characteristics of adult learners with implications for online learning design. *AACE journal, 16*(2), 137–159.

Chang, H.H., & Chuang, S.S. (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & management, 48*(1), 9–18.

Chang, H.Y., Wang, C.Y., Lee, M. H., Wu, H. K., Liang, J. C., Lee, S. W. Y., ... & Wu, Y. T. (2015). A review of features of technology-supported learning environments based on participants' perceptions. *Computers in Human Behavior, 53*, 223–237.

Chu, R. J. C. (2010) How family support and Internet self-efficacy influence the effects of e-learning among higher aged adults–Analyses of gender and age differences. *Computers & Education, 55*(1), 255–264.

Davis, F. D. (1989) Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly,* 319–340.

Day, B. W., Lovato, S., Tull, C., & Ross-Gordon, J. (2011) Faculty perceptions of adult learners in college classrooms. *The Journal of Continuing Higher Education, 59*(2), 77–84.

De Greef, M., Segers, M., & Verté, D. (2012). Understanding the effects of training programs for vulnerable adults on social inclusion as part of continuing education. *Studies in Continuing Education, 34*(3), 357–380.

Diep, A. N., Cocquyt, C., Zhu, C., & Vanwing, T. (2017). Online interaction quality among adult learners: The role of sense of belonging and perceived learning benefits. *Turkish Online Journal of Educational Technology, 16*(2), 71–78.

Diep, A. N., Zhu, C., Struyven, K., & Blieck, Y. (2017). Who or what contributes to student satisfaction in different blended learning modalities? B*ritish Journal of Educational Technology. 48*(2), 473–489.

Diep, N. A., Cocquyt, C., Zhu, C., & Vanwing, T. (2016). Predicting adult learners' online participation: Effects of altruism, performance expectancy, and social capital. *Computers & Education, 101,* 84–101.

Dixon, C. S. (2014). The three E's of online discussion. *Quarterly Review of Distance Education, 15*(1), 1.

Dohn, N. B. (2009). Affordances revisited: articulating a Merleau-Pontian view. *International Journal of Computer-Supported Collaborative Learning, 4*(2), 151–170.

Downes, S. (2014). *The Challenges (and Future) of Networked Learning*. Retrieved from http://www.downes.ca/presentation/346

Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education. *The Internet and Higher education, 2*(2-3), 1–19.

Grow, G. O. (1991). Teaching learners to be self-directed. *Adult education quarterly, 41*(3), 125–149.

Hall, R. (2008). Can higher education enable its learners' digital autonomy?. *Proceedings of the LICK Symposium. Edinburgh*, UK. 119–131.

Harasim, L., Hiltz, S. R., Teles, L., & Turoff, M. (1995). Network learning: A paradigm for the twenty-first century. *Learning Networks.* Cambridge, MA: The MIT Press.

Hodgson, V., McConnell, D., & Dirckinck-Holmfeld, L. (2012). The theory, practice and pedagogy of networked learning. L. Dirckinck-Holmfeld, V. Hodgson, & D. McConnell (ed.) *Exploring the theory, pedagogy and practice of networked learning*. Springer: New York, 291–305.

Hrastinski, S. (2009). A theory of online learning as online participation. *Computers & Education, 52*(1), 78–82.

Hsieh, Y. H., & Tsai, C. C. (2012). The effect of moderator's facilitative strategies on online synchronous discussions. *Computers in Human Behavior, 28*(5), 1708–1716.

Huang, H. M. (2002). Toward constructivism for adult learners in online learning environments. *British Journal of Educational Technology, 33*(1), 27–37.

Hung, M. L., & Chou, C. (2015). Students' perceptions of instructors' roles in blended and online learning environments: A comparative study. *Computers & Education, 81*, 315–325.

Isman, A. (2011). Instructional design in education: New model. TOJET: The *Turkish Online Journal of Educational Technology, 10*(1).

Jarvis, P. (2007). *Globalization, lifelong learning and the learning society: Sociological perspectives*, Routledge.

Johnson, S. D., & Aragon, S. R. (2003). An instructional strategy framework for online learning environments. *New directions for adult and continuing education, 2003*(100), 31–43.

Jonassen, D. H. (1991). Objectivism versus constructivism: Do we need a new philosophical paradigm?'. *Educational technology research and development, 39*(3), 5–14.

Jones, C. (2015). Networked Learning: A New Paradigm?. *Networked Learning*, Springer International Publishing, 225–243.

Ke, F., & Kwak, D. (2013). Online learning across ethnicity and age: A study on learning interaction participation, perception, and learning satisfaction. *Computers & Education, 61*, 43–51.

Kirschner, P. A., & De Bruyckere, P. (2017). The myths of the digital native and the multitasker. *Teaching and Teacher Education, 67*, 135–142.

Knightley, W. M. (2007). Adult learners online: Students' experiences of learning online. *Australian Journal of Adult Learning, 47*(2), 264.

Knowles, M. S. (1984). Andragogy in action: Applying principles of adult learning*, San Faranc*isco: Jossey-Bass.

Koul, R. B., Fisher, D. L., & Shaw, T. (2011). An application of the TROFLEI in secondary-school science classes in New Zealand'. *Research in Science & Technological Education, 29*(2), 147–167.

Laurillard, D. (2012). *Teaching as a design science: Building pedagogical patterns for learning and technology*, London: Routledge.

Lave, J., & Wenger, E. (1991). *Situated learning: Legitimate peripheral participation'*, Cambridge university press.

Linstone, H. A., & Turoff, M. (Eds.). (1975). *The Delphi method: Techniques and applications* (Vol. 29), Reading, MA: Addison-Wesley.

Littlejohn, A., Beetham, H., & McGill, L. (2012). Learning at the digital frontier: a review of digital literacies in theory and practice. *Journal of computer assisted learning, 28*(6), 547–556.

Locke, E. A., & Latham, G. P. (2002). Building a practically useful theory of goal setting and task motivation: A 35-year odyssey. *American psychologist, 57*(9), 705.

Mahan, J. D., & Stein, D. S. (2014). Teaching adults—best practices that leverage

the emerging understanding of the neurobiology of learning. *Current problems in pediatric and adolescent health care, 44*(6), 141–149.

Martin, A. (2006). A European framework for digital literacy. *Nordic Journal of Digital Literacy', 2*(1), 151–161.

Mason, R., Pegler, C., & Weller, M. (2004). E-portfolios: an assessment tool for online courses. *British Journal of Educational Technology, 35*(6), 717–727.

McLoughlin, C., & Lee, M. J. (2008). The Three P's of Pedagogy for the Networked Society: Personalization, Participation, and Productivity. *International Journal of Teaching and Learning in Higher Education, 20*(1), 10–27.

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of community psychology, 14*(1), 6–23.

Mezirow, J. (2000). *Learning as Transformation: Critical Perspectives on a Theory in Progress. The Jossey-Bass Higher and Adult Education Series*. San Francisco: Jossey-Bass Publishers.

Milheim, K. L. (2012). Towards a better experience: Examining student needs in the online classroom through Maslow's hierarchy of needs model. *Journal of Online Learning and Teaching, 8*(2), 159.

Moon, J. A. (1999). *Reflection in learning and professional development: Theory and practice*, Routledge.

Mupinga, D. M., Nora, R. T., & Yaw, D. C. (2006). The learning styles, expectations, and needs of online students. *College teaching, 54*(1), 185–189.

Newhouse, C. P. (2001). Development and use of an instrument for computer-supported learning environments. *Learning Environments Research, 4*(2), 115–138.

Nielsen, J. L., & Danielsen, O. (2012). Problem-oriented project studies: The role of the teacher as supervisor for the study group in its learning processes. *Exploring the theory, pedagogy and practice of networked learning*. Springer New York, 257–272.

Niemiec, C. P., & Ryan, R. M. (2009). Autonomy, competence, and relatedness in the classroom Applying self-determination theory to educational practice. *Theory and research in Education, 7*(2), 133–144.

Parchoma, G. (2014). The contested ontology of affordances: Implications for researching technological affordances for collaborative knowledge production. *Computers in Human Behavior, 37*, 360–368.

Park, S. Y. (2009). An Analysis of the Technology Acceptance Model in Understanding University Students' Behavioral Intention to Use e-Learning. *Educational technology & society, 12*(3), 150–162.

Pearce, S. D. (1995). Needs assessment: constructing tacit knowledge from practice. *International Journal of Lifelong Education, 14*(5), 405–419.

Pelz, B. (2010). (My) three principles of effective online pedagogy. *Journal of Asynchronous Learning Networks, 14*(1), 103–116.

Philips, L. A., Baltzer, C., Filoon, L., & Whitley, C. (2017). Adult student preferences: Instructor characteristics conducive to successful teaching. *Journal of Adult and Continuing Education*, 1–12.

Poll, K., Widen, J., & Weller, S. (2014). Six instructional best practices for online engagement and retention. *Journal of Online Doctoral Education, 1*(1).

Prior, D. D., Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitude, digital literacy and self efficacy: Flow-on effects for online learning behaviour. T*he Internet and Higher Education, 29*, 91–97.

Reeves, T. C., Herrington, J., & Oliver, R. (2002). Authentic activities and online learning' in A. Goody, J. Herrington, & M. Northcote (Eds.), *Quality conversations: Research and development in higher education*, Jamison, ACT: HERDSA, 562–567.

Ross-Gordon, J. M. (2003). Adult learners in the classroom. *New Directions for Student Services, 2003*(102), 43–52.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American psychologist, 55*(1), 68.

Ryberg, T., Buus, L., & Georgsen, M. (2012). Differences in understandings of networked learning theory: connectivity or collaboration?. L. Dirckinck-Holmfeld, V. Hodgson, & D. McConnell (ed.) *Exploring the theory, pedagogy and practice of networked learning*, Springer New York, 43–58.

Schaap, H., van der Schaaf, M., & de Bruijn, E. (2016). Interactions in vocational education: negotiation of meaning of students and teaching strategies. *Studies in Continuing Education*, 1–19.

Shea, P. (2006). A study of students' sense of learning community in online environments. *Journal of Asynchronous Learning Networks, 10*(1), 35–44.

Siemens, G. (2005). Connectivism: Learning as network-creation. ASTD *Learning News, 10*(1).

Steinfield, C., Ellison, N. B., & Lampe, C. (2008). Social capital, self-esteem, and use of online social network sites: A longitudinal analysis. *Journal of Applied Developmental Psychology, 29*(6), 434–445.

Taylor, E. W. (2008). Transformative learning theory. N*ew directions for adult and continuing education, 2008*(119), 5–15.

Thampy, H. (2013). Identify learning needs. *Education for Primary Care, 24*(2), 138–140.

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly, 36*(1), 157–178.

Vygotsky, L. S. (1978). *Mind in Society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

Walker, S. L., & Fraser, B. J. (2005). Development and validation of an instrument for assessing distance education learning environments in higher education: The Distance Education Learning Environments Survey (DELES). *Learning Environments Research, 8*(3), 289–308.

Wiltshire, H. C. (1973). The concepts of learning and need in adult education. *Studies in Adult Education, 5*(1), 26–30.

Woo, Y., & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *The Internet and higher education, 10*(1), 15–25.

Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education, 55*(1), 155–164.

Zhong, Z. J. (2011). The effects of collective MMORPG (Massively Multiplayer Online Role-Playing Games) play on gamers' online and offline social capital'. *Computers in Human Behavior, 27*(6), 2352–2363.

Zimmerman, B. J. (2000). Self-efficacy: An essential motive to learn. *Contemporary educational psychology, 25*(1), 82–91.

Zimmerman, B. J., & Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of educational Psychology, 82*(1), 51.

About the authors

Anh Nguyet Diep is a researcher at the department of Educational Sciences, Vrije Universiteit Brussel, in the field of ICT-based adult education. Her research focuses on blended learning with students' learning, satisfaction, and online interaction as major topics.

Chang Zhu is a professor at the department of Educational Sciences, Vrije Universiteit Brussel. The research of Chang Zhu covers innovative teaching and learning processes as well as the individual, institutional and cultural variables that affect the adoption of educational innovations, especially in online and blended learning. She is project leader for several European international research projects and cooperation projects.

Céline Cocquyt is a researcher at the department of Educational Sciences, Vrije Universiteit Brussel, in the field of ICT-based adult education. She is studying how participation in formal ICT-based adult education strengthens an individual's social and professional inclusion.

Maurice de Greef is a visiting professor at the department of Educational Sciences, Vrije Universiteit Brussel and realised a dissertation (PHD) about outcomes of adult education. He managed local, regional and European projects in innovating learning-environments, strategic policy-making in adult education and developing strategies for approaching learners and realising new courses in local settings. His research topics center around lifelong learning, (impact of) adult education, education for older people, social inclusion, low skilled learners and low proficiency in literacy.

Minh Hien Vo is currently a PhD researcher at the department of Educational Sciences, Vrije Universiteit Brussel, in the field of blended learning in higher education. He is also affiliated with the Graduate School, Can Tho University, working there as graduate program manager. His research focuses on blended learning implementation and the respective instructional designs that enhance student learning.

Tom Vanwing is a professor at the department of Educational Sciences, Vrije Universiteit Brussel. His research concerns adult education: synergies of combining formal and informal learning; professionalization and professional roles; innovative approaches, sustainable development: institutional university cooperation; education for sustainable development, social and cultural transition strategies for sustainability and development: community dynamics and informal learning in a multidisciplinary approach.

Contact details

Anh Nguyet Diep
Department of Educational Sciences
Vrije Universiteit Brussel

Email: diep.anh.nguyet@vub.be

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Horse talk: Equine based learning programs and their engagement with individuals

Rob Townsend
Michelle Hood

Federation University of Australia

Studies about equine therapies or equine experiential learning recommend that significantly more research, specifically longitudinal research, across age groups, genders, contexts and client cohorts needs to occur in diverse contexts. There exists diverse equine-related programs which engage with a range of cohorts, specifically; young children who have experienced abuse; adolescents who have experienced abuse and family violence and adults who have experienced family violence, psychiatric disorders, social anxiety and social isolation. The most common outcomes from the equine learning program studied for this article, from the case-studies and the thematic analysis includes; behavioural changes, stress relief, mind and body awareness and control, forming a relationship with an intuitive practitioner, guided meditations as a means of creating independent meditation techniques and re-engagement with education, work, friendships and family relationships. The mind–body awareness that is gained by participants of the program provides skills and techniques for individuals (and families) to utilise in every-day, with lifelong learning a crucial aspect of the program.

Keywords: *equine, learning, behaviour, engagement*

Context

The history of the relationships between humans and horses is an extensive one encompassing the mythic horse (winged horses, unicorns); the horse as worker (farms, carriages); the horse as hero (light horseman of WWI); the horse as competitor (equestrian, horse-racing, trotting); the horse as companion/pet and now the horse as therapeutic assistant (Frewin, & Gardiner, 2005). The horse remains visible in popular and national cultures during modern times, Australian icons such as Phar Lap and more recently, Black Caviar and Winx being widely recognisable. The jackaroo and jillaroo work in the Australian outback still attracts people of all ages to the romance of horses, cattle, bush and dust. The horse is visible on the streets when used by police to manage large crowds in urban areas and the horse is still used on the streets of Melbourne, Maldon, Echuca and Swan Hill in Victoria, pulling carriages and wagons for tourists and locals to evoke the feeling of Victorian life and the gold rush days of our history.

The horse has come to prominence over the past decade as a therapeutic assistant or tool in processes like Riding for the Disabled and Equine Learning and Equine Therapy programs. However the question remains; is the horse any more effective as a therapeutic tool than the human counsellor, art as therapy, or the use of dogs working with children with autism? Reflective of its early developmental stage, much of the published literature on 'equine assisted programs' (EAP) is practice-based, rather than research or theory-based. A meta-analysis of Animal Assisted Therapy (AAT), which examined 49 studies, concluded that:

> *Overall, AAT was associated with moderate effect sizes in improving outcomes in four areas: autism-spectrum symptoms, medical difficulties, behavioural problems, and emotional well-being. Contrary to expectations, characteristics of participants and studies did not produce differential outcomes.*
>
> (Nimer, & Lundahl, 2007)

A growing number of studies using standardised measurements pre- and post-intervention have explored the potential of EAP for 'increasing

positive and reducing negative behaviours as well as in proving beneficial for those suffering from general mental health problems' (Cantin & Marshall-Lucette, 2011). EAP has shown positive impacts on children, adolescents and adults with histories of family violence, childhood sexual abuse and depressive symptoms as evidenced in some studies by changes in the Child Depression Index or Beck Depression Inventory (Kemp, Signal, Botros, Taylor, & Prentice, 2013; Signal, Taylor, Bostrol, Prentice, Kazarus, 2013), social communication and sensory processing skills of primary-school aged children with autism (Gilliam Autism Rating Scale 2nd Edition (GARS-2) and the Sensory Profile School Companion (SPSC) (Ward, Whalon, Rusnak, Wendell, & Paschall, 2013).

Measurements have also been used for psychosocial variables in children with autism (Behaviour Assessment System for children) (Garcia-Gomez, Lopez Risco, Rubio, Guerrero, Garcia-Pena, 2014); attention and memory in children with cerebral palsy (response times to 'numeric square test' and 'verbal learning test') (Krejci, Janura, & Svobada, 2015) and adults with mental health issues Brief Symptom Inventory (BSI) and Personal Orientation Inventory (POI) (Klontz, Bivens, Leinart, & Klontz, 2007).

In recent years, more studies have been published that explore and analyse data around the participation of various cohorts of trauma-impacted individuals in processes managed by 'hippotherapeutic centres'. Lojek, Pluta, Ciesla, Domachowska, and Przybylowicz (2015) explored different breed types of horses and their suitability for EAP concluding that of the 47 horses in nine centres studied in Poland that geldings, commonly aged between 10–15 years of age and of diverse body size and heights were being used, connecting to the diversity of clients utilising these services.

Qualitative data from programs in the USA revealed that a form of therapeutic riding is typical of the programs that have been documented, whereby individuals engaged in equine experiential programs report outcomes such as muscle development in children, behavioural change in individuals showing social isolation and individuals reporting feeling calmer and more confident (Holm, Baird, Kim, Rajora, D'Silva, Podolonsky & Minishew, 2014). Other studies explore parent's perception of change in children following participation in a program

with horses, Hussey and Cowman (2015) interviewed parents of visually impaired children which revealed improvement in communications, concentration and general behaviour.

There are few clinical trials or those of pre- and post-testing evaluations but those that do exist are providing some early evidence of the effectiveness of EAP. Klontz et al. (2007) tested 31 participants of an equine-assisted experiential therapy program, reporting statistically significant reductions in psychological distress and increases in psychological well-being which sustained through the six month period following the program. A mixed-methods exploratory pilot study of the impact of EAP on 13 females who had experienced family violence (Whittlesey-Jerome, 2014) revealed greater improvement across self-efficacy, depression and general function in the group that used EAP to supplement existing treatments. Nurenberg, Schleifer, Shaffer, Yellin, Desai, Amin, Bouchard, and Montalvo (2014) studied an animal-assisted therapy program for 90 patients with recent in-patient violent behaviour and found that there were specific benefits of EAP with reduced violence amongst participants over the treatment period compared to those adults who didn't participate in the EAP.

Pendry, Smith, and Roeter (2014) conducted a randomised clinical trial involving saliva testing pre- and post-participation in an eleven week equine facilitated program, testing afternoon cortisol levels following participation in weekly 90 minute sessions. Children in the group had lower afternoon cortisol, and lower total cortisol concentration compared to the children on the waiting list to attend the program. Cortisol is a steroid hormone produced by the adrenal glands. Whenever we experience something the body perceives as a threat, like a large dog barking, a chemical known as adrenocorticotropic hormone (ACTH) is released into brain. This triggers the adrenal glands to release cortisol and adrenaline.

Cortisol is the main hormone involved in stress and the 'fight-or-flight' human response. This is a natural and protective response to a perceived threat or danger. Increased levels of cortisol result in a burst of new energy and strength. In the fight-or-flight response, cortisol suppresses any functions that are unnecessary or detrimental to that response. During a fight-or-flight response, individuals experience rapid heart rate, dry mouth, stomach upset, diarrhoea and/or panic. Cortisol also

suppresses growth processes, suppresses digestive systems, suppresses reproductive systems and changes how immune systems respond.

Pre- and post-testing for maladaptive behaviours in a comparison between equine assisted counselling and classroom-based counselling for 164 students at high risk of academic and social 'failure' (Trotter, Chandler, Goodwin-bond, & Casey, 2008) found statistically significant improvement in seven out of 17 behaviour areas, including; emotional symptom index, personal adjustment composite, social stress scale, self-esteem scale and the depression scale. Another study of 63 children who participated in a mean of 19 EAP sessions and tested using the Global Assessment Function (GAF) scale found that the greatest improvement was amongst the youngest children and there was a quick response to EAP amongst younger children especially those who had experienced physical abuse and neglect (Schultz, Remick-Barlow, & Robbins, 2007).

The conclusions that can be drawn from this literature is that all studies recommended that significantly more research, specifically longitudinal research, across age groups, genders, contexts and client cohorts needs to occur in all EAP and AAT contexts. The studies mentioned here reveal that there may be a measurable impact of EAP on a range of cohorts, specifically; young children who have experienced abuse, some adolescents who have experienced abuse and family violence and adults who have experienced family violence, psychiatric disorders, social anxiety and social isolation. However, it should be noted that there has been no research into the comparison between what could be very different kinds of EAP or AAT, that is, all EAP and AAT programs seem to have different models depending on the influences and preferences of the facilitator. As such there has been no previous examination of the role of the EAP or AAT facilitator in each of the programs as compared to the role of the horse or animal in any specific program.

Research methodology

This research used the Most Significant Change Technique (MSC), which was initially developed by Davies (1996, 2005) for the evaluation of social development programs in rural Bangladesh. MSC involves the collection of significant change (SC) stories at the 'field' (or in this case direct practice) level where diverse and emergent outcomes are produced by a complex program. During the systematic story selection

process, stories are assessed as the most significant by a panel of stakeholders (often compromising staff and funders), involving in-depth discussions about the value of the changes that have been reported (Davies, & Dart, 2003, 2005).

MSC stories are collected from people most directly involved in one equine learning program in Victoria, Australia during 2015 and 2016. Sixteen participants and their parents or their human services workers, participated in the research through unstructured interviews that aimed for responses to the broad question 'During [specified time frame], in your opinion, what was the most significant change that took place for participants in the (equine learning) program?' (Davies, & Dart, 2005, p. 10).

The 'domain of change' (Davies, & Dart, 2005) indicated in the question may vary from program to program. In the case of the sixteen stories being collected, the 'domains of change' may unnecessarily complicate the process. The story selection panel then considers responses to this MSC question, and identifies the most significant change of all (by responding to a question such as 'From among all these significant changes, what do you think was the most significant change of all?' (Davies, & Dart, 2005, p. 10).

MSC is seen as a useful alternative where traditional evaluation techniques are not able to make sense of the effects of a program. MSC can be utilised as a continuous process of program monitoring and evaluation and does not merely focus on accountability, but also on learning (Davies, & Dart, 2005). MSC also allows for the unique voice of the respondent when capturing the impacts of the program, and the story collection process can enable respondents to reflect on and articulate the SC that had occurred, thereby constructing meaning. During the process of story selection, the review panel is able to construct additional meaning (Davies, & Dart, 2005).

In this case, MSC had been utilised to evaluate, post intervention, the engagement and outcomes of a specifically customised equine learning service. Stories were collected from 16 participants, who self-selected, by a field researcher independent of the equine learning service over a three month period in 2016. The respondents related their observations from the perspective of the following backgrounds and relationships with the equine learning service.

The sample consisted of five adult clients, five parents of clients, two school well-being officers and two-community based case workers. The researchers conducted semi-structured qualitative interviews, with the aim of identifying the most significant change that took place for participants in the program. A central part of MSC is open questions to the respondent, allowing them to use their own judgment in selecting the significant change in the client. The researcher asked each interviewee: 'In your opinion, during your involvement with this equine learning program, what was the most significant change that took place for you/participants?'

The interviews were then phrased informally in four questions:

1. Tell me how you (the storyteller) first became involved with this program (equine learning) and what your involvement in the program was.
2. From your point of view, describe a story that best describes the most significant change that has resulted from your involvement in this program.
3. Why was this story significant for you?
4. Have you participated in other types of therapies and/or assisted learning processes in the past, and how has this one differed from those?

Interviews were audio recorded, transcribed, and the transcriptions systematically analysed by the selection panel. Due to timeframe constraints and potential conflict of interest from other stakeholders, this panel was the research team. All transcripts were also fed into NVivo and thematically analysed to ensure no specific common themes were missed in the MSC change process. MSC stories that articulated significant program impact were developed and along with the reasons for the choice of these stories are presented in a research report with excerpts in this article.

Equine learning as a service delivery model

> *'I pretty much imagined everybody around me were horses. It does sound crazy but I just imagined it. I put myself back in that situation and thought "they're [people are] going to imitate to me how I'm treating them, so they'll treat me meanly if I'm treating them meanly and the horse is exactly the same thing". So if I put off a mean or an angry vibe, they're going to sense that and do that to me. I just used my anchoring and my grounding. I did grounding every morning when I woke up or I laid in bed. You can do it laying down, standing up. You could sit down and do it. It's just that becoming one with yourself.'*
>
> (Townsend, Sadowski, Phillips, & Hood, 2016)

The equine learning facilitator of this equine learning program in Victoria, Australia has personally been involved with horses and riding of horses for over 30 years, since she was three years old. Up until 2010 she had been a traditional horse-person, riding stock-work on the family farm and for 6 years she rode racehorses in track-work at the racetrack. Her respect of the horses' sensitivity and intelligence has changed significantly over the past six years. She now approaches her relationships and connections with horses from a greater awareness that honours mind, body and spirit of both the horse, the individual and the interaction between the two of them.

As the sole facilitator of the equine learning program, the facilitator's specific human services coaching and counselling training has included: Certificate IV in Disability; Advanced Diploma in Transpersonal Counselling (Phoenix Institute of Australia); MBIT - Mind Body Integration Coach; Level 1 – Reiki, Certified Life Coach and a Certificate IV in Training and Assessment (Townsend, et al., 2016)

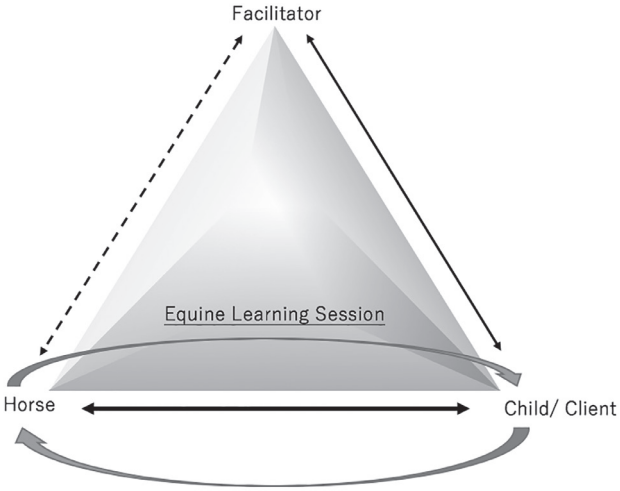


Diagram 1: Illustrates the interaction between facilitator, child/client and horse during further sessions, this change in dynamics occurs when mutual trust has been established between horse and child/client creating a stronger bond. The link between horse and facilitator changes and the dynamic between all three becomes more about mind and body experiences. The facilitator steps back when this has been achieved. Re-establishing connection when the current process is integrated and next task needs facilitation (Townsend, et al., 2016).

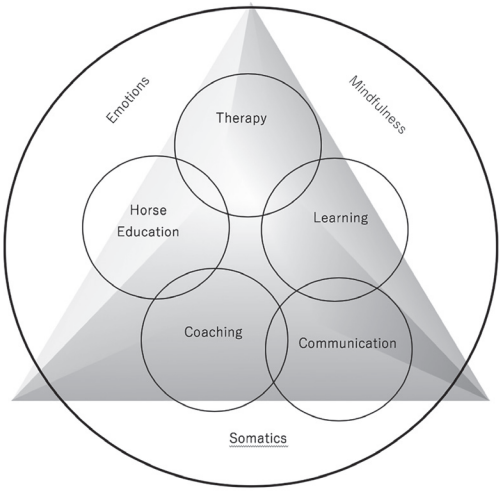


Diagram 2: Describes the multi-faceted factors that are part of the whole process during the equine learning program. Each facilitator–client approach is multi-faceted as it acknowledges the trauma of the client and engages in a range of mind–body experiences that are client-centred and based on techniques from other therapeutic frameworks (Townsend, et al., 2016)

The multi-faceted equine learning program discussed in this article can also be described here in Table 2, as a linear process, even though for many clients it may be a circular process. Also noteworthy is that the clients who cannot access the equine learning program include clients of child protection (DHHS), TAC and adult clients of mental health services who are unable to self-refer, due to cost and the lack of subsidies available by these agencies. The limitations of referrals tend to be about a perceived lack of knowledge and evidence of the validity and effectiveness of equine experiential learning/interventions.

Table 1: Equine Learning Program as a linear client engagement process

Client referral	Adult clients are self-referred via the equine learning web-page or Facebook page. Adolescents and children are referred to equine learning from school well-being officers, DHHS, employment agencies. Problem identification (PTSD, anxiety, social isolation, negative behaviours) has occurred via case-worker.
Session 1	Assessment of client's ability to 'orient self as safe' at the equine learning venue, which is outdoors in a bush setting with a horse arena, a small enclosure, horses, ponies and other small animals (dog, sheep). This session will/may include activities to get the client to focus on their breath and breathing, to slow the heart rate and calm emotions.
Sessions 2, 3, 4	Mindfulness activities; introducing and developing a relationship with a horse chosen by the client to work with. Mindfulness involves a series of attention-training practices and cognitive strategies that can help individuals unhook from unproductive thought patterns and behaviours. It involves learning to pay attention to the present moment rather than worrying or dwelling on the past.
Sessions 4–8	Clients can often require refresher sessions in the 6–12 months following the equine learning program as their emotions and/or behaviours can slowly 'slide' back as normality compared to the newer emotions and behaviours developed through the program.
Sessions 8–10 or 8–12	Emotions; learning new processes of managing destructive, negative emotions that produce stress, anxiety, isolation, anger and associated behaviours.
Refresher sessions	Clients can often require refresher sessions in the 6–12 months following the equine learning program as their emotions and/or behaviours can slowly 'slide' back as normality compared to the newer emotions and behaviours developed through the program.

Thematic analysis

'It's not just the horses' … 'there's a whole range of things …'

The thematic analysis of all 16 transcripts reinforces the multi-faceted nature of the equine learning program, where we can group the words of the participants, their phrases and meaning into the elements outlined in Diagram 2: The facets of therapy, learning, and communication, coaching and/or horse education. This thematic analysis of the interview transcripts was conducted both manually and using Nvivo (6.0) during May–August 2016.

The main themes emerging were:

Being taken (139), as in taken somewhere else, lessons, being accepted, bringing, holding, learning, taking something away from the program, turning up, engaging, being guided (Learning).

See(ing) (125), attending (the program), being asked to, bringing something, engaging, guided, guiding, holding, being involved, training, taking away (from the program), making needs visible (Coaching).

Like(d) (107), care, cared (for), similar, a wish (for something better) (Therapy).

Feeling (104), experiences, (the) experience (of the program), (finding) feeling, feels, fingers, impressed, sense and senses, touch, touched (Therapy).

Horses (96), horse, horses, buck (Horse Education).

Think (95), believe, cerebral, guess, imagine, reason, meaning, reasoning, remembering, thinking, thought, thoughts (Communication).

Make (happen) (83), build, builds, clear, clearly, crap, doing, fixed, gives, giving (a) hit, making, pretend, pretending, reached, reaching, throwing (away) (Coaching).

Know(ing) (73), bang, bed, experiences, knowing, knowledge, love, loved, loved ones, recognising (Learning).

Now (49) immediate, immediately, instant, the present, being present, straightaway (Communication).

How much (48) lots, much, often, practical, practice (Learning).

The main themes of *Learning, Therapy, Communication, Coaching and Horse Education* emerged from the thematic analysis and revealed some tensions in perceptions, and outcomes of this specific program. The terms of equine learning and equine therapy were used interchangeably by all participants and also by the facilitator, however, the main themes of *Learning, Communication and Coaching* seem to allude more the experiential learning frameworks (Blossfeld, Kilpi-Jakonen, Vovo de Vilhena & Bucholz, 201) rather than psycho-social therapeutic type processes. Participants clearly used terms such as lessons, learning attending, training, guided as ways of explaining the processes of the program which had the most significant impact on them and their

behaviours. The words and terms outlined above reveal that once participating in the program then individuals saw themselves as 'learners' and gaining skills and knowledge about themselves by learning about horses and then being guided through processes that impacted their behaviour.

Conclusions

This article summarises one study of one equine learning program facilitated by a sole practitioner. The participants of this equine learning program reflected on the components of the program and on the communication style and learning they experienced. The equine learning program encompasses facilitated observation, communication and embodied experiences that relate human to horse and human to human. The most common outcomes as expressed from the transcripts and from the thematic analysis includes: being taken on a journey, seeing something new, being liked, feeling, thinking and knowing.

The mind plus body awareness that is gained by clients of the program provides skills and techniques for individuals (and families) to utilise in every-day life (Learning) is a crucial aspect of the program. Sometimes the initial contact by the facilitator as intuitive practitioner requires intensive observation and one-to-one communication. Noticing behaviours and allowing individuals to locate feelings that are hidden or supressed (Therapy). The program then contributes to individuals engaging with the horses (Horse Education) and being led or trained to build their skills, reach out for assistance when stressed and then visioning a new way of feeling (Coaching). The patterns of communication are important as they are human to human and horse to human and human to horse, this transference of emotion is a complex phenomenon, which highlights to all the vulnerability of the client via the vulnerability of the horse. The horse then becomes role model as the facilitator guides the client into behaviour patterns recognised by the horse as calm and measured. This acts as a mirror for the client, who can then proceed to further activities that strengthen relationships within the program and then within their lives.

EAP is an emerging form of trauma-informed practice contrasting against established forms of human services and therapeutic relationships. It is not unique, in that programs are developing across Australia, Europe and the USA. The horse plays a central role in the process of establishing a relationship plus power, the response of the

individual and the sentient. However, it is the philosophies, experiences and role of the facilitator, their passion, their processes of engaging with each individual client and their flexibility in adjusting the program for each client or group of clients plus the ability to recognise trauma in each individual, that allows the whole equine learning process to work.

There is no evidence of the long-term impact of equine learning programs, however, there is some evidence of short-term impact and significant behaviour change by mostly female participants. There is evidence of the need for participants to participate in 'top up' sessions at six months and 12 months following participation in the whole program. This aligns with the international research evidence (Townsend, et al., 2016).

There is significant buy-in for this particular program from human services agencies and schools across the western region of Victoria, Australia, however, funding can be difficult to locate for individual clients or families to participate (Townsend, et al., 2016). Clients are reporting and demonstrating to others, significant changes in their engagement with education, work and their relationships following participation in the equine learning program. This is most often the aim of referral agencies, case-workers and schools, to get individuals to re-engage with their services so that further learning and development for individuals can occur.

References

Blossfeld, H-P., Kilpi-Jakonen, E., Vono de Vilhena, D., & Buchholz, S. (2014). *Adult learning in modern societies: An international comparison from a life-course perspective*, Edward Elgar Publishing Ltd., U.K. Cheltenham.

Cantin, A., & Marshall-Lucette, S. (2011). Examining the literature on the efficacy of equine assisted therapy for people with mental health and behavioural disorders. *Mental health and learning disabilities practice and research, 8*(1), 51–61. DOI: 10.5920/mhldrp.2011.8151

Dart, J., & Davies, R. (2003). A Dialogical, Story-Based Evaluation Tool: The Most Significant Change Technique, *American Journal of Evaluation, 24*(2), pp. 137–155.

Davies, R. J. (1996). An evolutionary approach to facilitating organisational learning: An experiment by the Christian Commission for Development in Bangladesh. Swansea. UK: Centre for Development Studies. Retrieved from http://www.swan.ac.uk/cds/rd/ccdb.htm. This paper has also been published, with some variations, in D. Mosse, J. Farrington, and A. Rew (1998) Development as process: concepts and methods for working with

complexity. London: Routledge/ODI (pp 68–83); and in *Impact assessment and project Appraisal, 16*. No. 3, September 1998, 243–250.

Davies, R., & Dart, J. (2005). The 'Most Significant Change' Technique: A Guide to its Use. CARE International, United Kingdom. DOI: 10.13140/RG.2.1.4305.3606

Frewin, K., & Gardiner, B. (2005). New age or old sage. A review of equine assisted Psychotherapy. *The Australian Journal of Counseling Psychology, 6*, 13-17.

Garcia-Gomez, A., Lopez Risco, M., Rubio, J. C., Guerrero, E., & Garcia-Pena, I.M., (2014). Effects of a program of adapted therapeutic horse-riding in a group of autism spectrum disorder children. *Electronic Journal of Research in Educational Psychology, 12*(1), 107–128.

Holm, M. B., Baird, J. M., Kim, Y. J., Rajora, K. B., D'Silva, D., Podolinsky, L., & Minshew, N. (2014). Therapeutic horseback riding outcomes of parent-identified goals for children with autism spectrum disorder: an ABA' multiple case design examining dosing and generalization to the home and community. *Journal of autism and developmental disorders, 44*(4), 937–947. doi: 10.1007/s10803-013-1949-xHussey, A., & Cowman, D. (2015). The role of equine therapy in an educational setting for visually impaired children. Enabling Access for Persons with Visual Impairment, 99.

Kemp, K., Signal, T., Botros, H., Taylor, N., & Prentice, K. (2013). Equine facilitated therapy with children and adolescents who have been sexually abused: A program evaluation study. *Journal of Child and Family Studies 23*, 558–566.

Klontz, B.T., Bivens, A. Leinart, D., & Klontz, T. (2007). The effectiveness of equine-assisted experiental therapy: Results of an open clinical trial. *Society and Animals, 15*, 257–267.

Krejci, E. Janura, M, & Svoboda, Z. (2015) The benefit of hippotherapy for improvement of attention and memory in children with cerebral palsy: A pilot study. *Act Gymnica, 45*(1), 27–32.

Lojek, J., Pluta, M., Ciesla, A., Domachowska, A., Przybylowicz, N., & Lojek, A. (2015). Conformation analysis of horses used in equine-assisted activities at Polish hippotherapeutic centers. *Acta Scientiarum Polonorum. Zootechnica, 14*(2).

Nimer, J., & Lundahl, B. (2007) Animal-assisted therapy: A meta-analysis. *Anthrozoös, 20*(3).

Nurenberg, J.R., Schleifer, S.J., Shaffer, T.M., Yelling, M., Desai, P.J., Amin, R., Bouchard, A.B., & Montalvo, C.R. (2014) Animal-Assisted Therapy With Chronic Psychiatric Inpatients: Equine-Assisted Psychotherapy and Aggressive Behavior., *Psychiatric Services in Advance*, Oct. 1, 2014. DOI:10.1176/appi.ps.201300524.

Pendry, P., Smith, A. N., & Roeter, S. M. (2014). Randomized trial examines effects of equine facilitated learning on adolescents' basal cortisol levels. *Human–Animal Interaction Bulletin, 2*(1), 80–95.

Schultz, P. N., Remick-Barlow, G. A., & Robbins, L. (2007). Equine-assisted psychotherapy: A mental health promotion/intervention modality for children who have experienced intra-family violence. *Health & Social Care in the Community, 15*(3), 265–271.

Signal, T., Taylor, N., Botros, H., Prentice, K., & Lazarus, K. (2013) Whispering to horses: Childhood sexual abuse, depression and the efficacy of Equine Facilitated Therapy. *Sexual Abuse in Australia and New Zealand 5*(1) 24–32.

Townsend, R., Sadowski, C., Phillips, J. & Hood, M. (2016). *A Preliminary, Independent Evaluation of Equine Learning Experiences Australia (ELEA),* Federation University Australia, Victoria, Australia.

Trotter, K. S., Chandler, C. K., Goodwin-Bond, D., & Casey, J. (2008). A comparative study of the efficacy of group equine assisted counselling with at-risk children and adolescents. *Journal of creativity in mental health, 3*(3), 254–284.

Ward, S.C., Whalon, K., Rusnak, K., Wendell, K., & Paschall, N. (2013). The association between therapeutic horseback riding and the social communication and sensory reactions of children with autism. *Journal of Autism Developmental Disorders 43,* 2190–2198.

Whittlesey-Jerome, W. K. (2014). Adding equine-assisted psychotherapy to conventional treatments: A pilot study exploring ways to increase adult female self-efficacy among victims of interpersonal violence. *The Practitioner Scholar: Journal of Counseling and Professional Psychology, 3*(1), 82–101.

About the authors

Rob Townsend is Associate Professor of Social Work at Federation University whose research and publishing career has been around adult learning and adult transitions, specifically in regional Australian communities.

Michelle Hood is Lecturer in Human Services and Social Work at Federation University.

Contact details

Associate Professor Rob Townsend
Federation University of Australia

Email: r.townsend@federation.edu.au

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Psychological bases of developing social competences of seniors with disability

Marianna Müller de Morais
Lucia Rapsová

Constantine the Philosopher University in Nitra

According to international documents, older people have the right to fully develop their skills and and knowledge, and to have a sense of dignity. Seniors with disabilities also have the same rights. For this reason, it is necessary to provide personal development and education that enables a good quality of life, in spite of their disability. Developing social competences is an important part of education, however it is necessary to follow specific requirements when working with this target group. This study is concerned with the analysis of psychological bases and specific features of developing social competences of seniors with disabilities. It offers possibilities for developing their social competences by means of the training programme Happy Senior.

Keywords: *disabled senior, specific features of senior education, training of social competences, training programme Happy Senior, cognitive–behavioural approach*

Introduction

The number of people older than 60 will increase from 11% (in 2006) to 22% by the year 2050. By then, there will be more seniors than children for the first time in the history of the human race. The ageing population, along with the social consequences, significantly emphasises the importance of the ageing society as well as individual ageing (WHO, 2007, in: Veteška, 2016). Longer years of healthy and active lifestyles and maintaining functional ability lead to successful ageing (Dienstbier 2009). These can be supported by providing general information (together with prevention) and systematic education for adults (including education for seniors about healthy ageing). There are two basic aims fulfilled by education: the social aim oriented to the development of human resourcefulness, and the individual aim of dealing with the personality of individuals and their ability to adapt themselves to changing life conditions (Porubská, Határ, 2009).

We live in a time marked by significant demographic changes in population. Compared to the past, living standards have increased, directly impacting the growing age of the population. In the past the composition of the population had a pyramidal shape – with an increase in age there was a corresponding decrease in the number of people. Now we see this shape has narrowed and in the future it will more closely resemble a tree. Average life expectancy increases with better living standards. As the number of retired people increases, the percentage of disabled and disadvantaged seniors is proportionally higher as well. As a consequence of their disability, these seniors are often placed in residential social service institutions or in other facilities for seniors (Határ, 2014; Müller de Morais, Jedličková, 2015).

The attitude of society to seniors and seniors with a disability is quite negative. Ageing and illness are generally perceived to represent the decline of a human life. In Central Europe, there is still a predominant stereotypical perception of older people as unproductive because their experience and competences are considered less relevant (Balogová, 2009; Határ, 2014). The value system of this society emphasises maintaining our competences, appearance, efficacy and performance, which puts older people and older people with a disability in a very disadvantaged position. This emphasis is supported by mass media who confirm the importance of outward appearance, health, vitality and

activity. All exceptions to this norm are considered to be non-beneficial. Therefore ageing is not only everyone's individual problem, but a social problem as well. Society should respect seniors with all their specific attributes influenced by age and health conditions. We should provide them with conditions for their personal development that will improve their quality of life.

In our article we emphasise the importance of personal progress for seniors with a disability that can be achieved through training in social competences. The aim of our study is to analyse psychological bases to identify specific ways of developing the social competences of seniors with a disability. We also look at the possibilities of developing their social competences through the programme *Happy Senior*, which is used as an example of programmes for seniors carried out in social service institutions.

Education for seniors with a disability and its psychological bases

Psychologists (Langmeier, Krejčířová, 2006; Vágnerová, 2000) say that people are as old as they feel. Judging the quality of life by years is the same as judging the value of a book by the number of pages. In other words, it is not possible to measure quality of life by life expectancy. People can keep their minds and bodies fresh if they are able and motivated to acquire new skills and knowledge and to develop their personalities. Many researchers (Balogová, 2009; Határ, 2016; Dienstbier, 2009) confirm that education for seniors carries importance. This raises many questions related to the education of seniors with a disability living in residential social service institutions or other facilities. These institutions are mainly orientated to satisfying their physiological needs. However, all humans, including seniors with a disability, are unique, with their own psychological needs to be satisfied in order to have a better quality of life.

Vágnerová (2000) characterises these psychological needs more thoroughly and she includes: the need for stimulation, the need for orientation and learning, the need for activity, the need for emotional certainty and safety, and the need for self-realisation and an open future. Many retired people are no longer performing a professional role so they need to redefine themselves later in life. The needs of seniors are very individual. However, all these needs form a complex relationship

which consists of the physical, the psychological, and the social, and these are inseparable from each other. These needs should be taken into consideration and could be satisfied through education.

Muhlpachr (2004) describes education for seniors as a purposeful process with internal rules, specific targets, forms, methods and means, representing the tools for achieving determined aims.

Prusáková (2005) thinks about the questions that have to be answered in order to make this education effective:

What makes the orientation of education for seniors so specific?

What characteristic features do educational situations with seniors have?

What psychological and sociological aspects influence the educational intentions? These questions help to analyse their needs and look for possible solutions.

Planning this education requires knowledge of the psychology of an older person. Čornaničová (2007) defines this from the aspect of:

1. Specific features as bases of modelling the education for seniors

- To perceive education for seniors as a lifelong process.
- To take into consideration all the possibilities of the educational system.
- To recognise the needs and interests of seniors.
- To enable education for all seniors without discrimination.
- To improve the quality of life for seniors by means of educational activities.
- To remove the traditional opinion about life in the senium.
- To support the active life of seniors.
- To make use of their life experience for themselves and for society as well.

2. The proper process of education for seniors:

- To choose adequate methods, forms and means.

- To respect psychophysical changes in the process of ageing.
- To see all the specific features of this education.
- To advise seniors how to solve their personal problems by means of educational activities.
- To support creativity and an active lifestyle.
- To provide not only knowledge but also psychological support.

Seniors with a disability require a different approach than other educational groups in different age categories. It is very important to be aware of the psychological aspects typical of the education and instruction of seniors. In order to make the education of this target group effective, we have to respect and accept these particularities.

When old age occurs, there are physical, psychological, personal and social changes that alter a person's ability to learn and which influence the course of education as well. This decline in abilities, such as those related to the recording, storing and using of information, start to be evident in the senium (Vágnerová, 2000).

Table 1: An outline of developmental changes and specific features of education for seniors

Developmental changes	Specific features of education
Changes of the activating level – slowing down of mental activity, worsened concentration and attention, greater tiredness, delayed reaction time.	Slower presentation speed – respect longer reaction times and information processing. Allow time for thinking about answers. Provide smaller amounts of information in the same time frame. Formulate instructions and tasks clearly. Reiterate provided information often. Use analogical methods – similarity. Strengthen the knowledge using illustrative methods (practical exercises, demonstration, experiental methods, and tools).

Developmental changes	Specific features of education
Changes in orientation of the surroundings – reduction in sensual perception, changes in vision – far-sightedness (hyperopia), presbyopia, reduced adaptation to darkness.	Educational materials: Use white paper (not blue nor green paper for example). Do not use glossy paper. Use a bigger font size. Use a black or red font on a white background. Use simple sentence structure. Use bigger graphical visualisations. Adopt the use of a magnifying glass. Check reading glasses. Create a safe environment for education (no risk of injury).
Changes in hearing – reduction in hearing, worsened perception of high tones, sounds, fast speech and speech of more than one person at once	Use short and simple sentences. Repeat information more often. Speak clearly and slowly. Speak more loudly but do not shout. Speak with seniors face to face. Minimise disturbing moments. Remove background noise. Check the functionality and correct setting of their hearing devices. Find out which ear is better for hearing.
Decline of memory competences – decay and slowing down of all memory processes, reduction in the ability of short-term memory.	Plan shorter and more frequent educational units. Include longer breaks. Use pictorial and illustrative methods of education more often.
Changes in intellectual functions and difficulties in learning – decline of intellectual abilities, bigger reduction of fluid intelligence, tendency to use knowledge and ways of thinking which were acquired in the past (crystallic intelligence).	Use adequate forms and methods of education for seniors (in relation to the subject matter and type of topic, age particularities, and health limitations of seniors). Respect preferred styles of learning. Teach seniors 'how to learn'. Motivate seniors to use their previously acquired knowledge, strategies of thinking and ways of solving different situations. Allow seniors to apply their own experiences when solving any model situations. Provide plenty of opportunities to speak and express themselves. Use objects, pictures or drawings as a starting point and ask seniors to tell you what they see. Give seniors a chance to talk about what they are learning. Be interested in their learning difficulties: ask them what is easy and what is difficult. By planning model situations, make use of personal needs and interests, provide seniors with a possibility to show their curiosity and creativity. Use different methods of repeating and strengthening knowledge. Enable them to apply the acquired knowledge and skills in particular activities. Provide systematic positive feedback.

Developmental changes	Specific features of education
Declining ability to coordinate different cognitive functions and to use different information in analysing problems – reduced possibility to use more complicated strategies, a tendency to solve problems in a simplified way.	Respect any hierarchy of learning by seniors. Use life experience of seniors by learning. Support experiential learning. Apply active and creative activities. Use methods of solving problems in teaching. Activate the attention of seniors by applying adequate initial and continuous motivating methods. Create a logical structure of topics (concept maps, supporting points, key words, graphs, schemes). Facilitate the process of learning by seniors with the application of manifold mnemotechnic aids. Include as many senses as possible in the process of learning.
Changes in will and will processes, changes in personality, changes in emotional experience and social relationships – slower deciding, increasing the need for safety and stability, deepening introversion, carefulness, punctiliousness, anxiety, tendency towards impatience, higher concentration on self and close people in one's surroundings.	Provide plenty of opportunities for seniors to get to know and support each other. Create a light atmosphere in the educational group with humour, jokes and laughter. Include social activities in the educational group which support the feeling of belonging to the group. Use learning in teams and support small group projects. Apply adequate strategies and methods of emotionalisation. Teach them how to verbalise feelings so that seniors can express how they feel. Enable them to plan their social activities, debates, exhibitions of their own projects, trips or excursions.
Psychological changes of increasing character in senium – (calmness, perseverance, patience, stability in opinions, wisdom, ability of forming judgements etc.).	Support the development of creativity by means of reading, writing, word games and other activities. Support positive motivation, joy and enthusiasm in seniors. Respect specific individual characteristics of their personalities in their learning. Stimulate their positive character features using manifold psychology games.

(Adapted according to Cohen, 2001, Zanovitová, 2015, Vágnerová, 2000, Langmeier, Krejčířová, 2006, Škorvagová, 2016)

Neurological changes are related to the psychological changes in old age (i.e. changes in the central nervous system). It has been demonstrated that the human brain loses between 10% and 15% of its weight (Stuart-Hamilton, 1999, in: Veteška, 2016). It can have an influence on the psychology because the cells of the central nervous system cannot be replaced (Stuart-Hamilton, 1999, in: Veteška, 2016).

Changes in intellectual ability occur in different ways. Older people tend to keep their ability to use previously acquired knowledge and ways of thinking. Bigger changes can be seen in the ability to process new information and solutions. They keep their previously acquired knowledge, strategies of thinking, and solving different situations much more easily. This fact also confirms the importance of experience

– the more we learn, the more we will apply through to our old age (Langmeier, Krejčířová, 2006).

The majority of current conceptions about 'successful ageing' emphasise the importance of maintaining a decent amount of activity in old age. Inactivity is pathogenic not only physically (e.g. muscular atrophy, sensory defects, immobilisation syndrome) but also mentally and socially. Many studies (Langmeier, Krejčířová, 2006; Vágnerová, 2000) demonstrate that adequate activation of cognitive processes (after some short training) helps older people to achieve results that are comparable to the results of many younger people when testing fluid intelligence (Langmeier, Krejčířová, 2006).

In regards to creativity, numerous statistics point out that people achieve their peak in all areas of creative activity between the ages of 25 to 40, and then their productivity usually decreases. However, if we look at the performance of some famous people in their old age, the statistics in this area can be misleading (e.g. Goethe finished the second part of Faust at the age of 83, Sophocles wrote his King Oedipus at the age of 80, etc.). We can agree with the opinion that there is no upper age barrier limiting human creativity. People can be creative throughout their whole life. Motivation, persistence and enthusiasm are more decisive here than age (Langmeier, Krejčířová, 2006). According to Cohen (2001), our creativity, positive outlook and sense of well-being boost our immune system.

Ageing causes performance to slow down as well. Older people have more difficulty understanding and adapting to new situations. But the worsening of general ability does not necessarily occur concurrently; for example, older people may need more time for some activities but they are still able to do them (Vágnerová, 2000).

In education for seniors we have to take into consideration that the load of the organism – the biological and psychological load – increases with ageing. Therefore a very important role is played in how people prepare for their old age. There already exists courses in preparation for old age (e.g. in the USA since 1949 and England one year later). The main aim is to increase the quality of life of the individual and to contribute to intergenerational cohesion. Educational activities help to ensure a successful transition and adaptation to later developmental periods and they contribute to keeping and improving health (Veteška, 2016).

At the same time, we would like to emphasise that the aforementioned developmental changes in old age are very individual – they have an individual character and not all old people experience these changes in the same way.

It is indisputable that personal development can continue in later life and old people can benefit from their own wisdom and experience. There are many old people who start learning a new language, or braille alphabet, typewriting or working with a PC. Psychological changes in old age also depend on biological as well as socio-cultural influences. However, the time when these changes start to become evident, their dynamics and also the reactions to them are fully individual (Vágnerová, 2000). Research (Merriam, 2001, in Crawford, 2004) supports the idea of lifelong learning of healthy individuals up to at least the age of 70.

Similarly, other studies (http://www.euromedinfo.eu/teaching-older-adults.html/) also confirm that learning capacity usually remains at a performing level up to the age of 80. We cannot stop the process of ageing, but we can use certain methods that are connected with increasing the ability of keeping mental processes active: education, exercise and manifold other stimulating activities for the brain.

Older people cannot learn as fast as young people but they can compensate this deficit with a wide scale of experience (Crawford, 2004). When teaching older adults, we can make use of the psychological character developments occurring in old age, in that older people are calmer, have more perseverance, patience, wisdom, stability in opinions, and the ability to form judgements (Zanovitová, 2015).

In addition to the aforementioned developmental changes, the ability of seniors with a disability to learn is also influenced by the type and degree of disability, which must be taken into consideration when choosing topics, principles, methods, forms and strategies. In order to be able to work with seniors with a disability, it is necessary to have adequate theoretical knowledge and practical experience of the particular expressions and features resulting from certain kinds of disability. Knowledge of the disability area enables us to choose educational principles, methods, forms and aids correctly. We can apply educational strategies that will facilitate and make the education process more effective. They can help us to achieve our determined educational aims and, in this way, they will increase their quality of life

at retirement age. In order to achieve educational aims it is important to set up educational programmes in such a way that participation in these programs will help seniors solve their personal problems. We also emphasise the importance of providing opportunities for the participation of seniors, for their creative self-expression and cultivation of their personalities in order to develop their social competences (Müller de Morais, Rapsová, 2017).

We support the idea of creating complex programmes based on the needs of the practice. They should respect the overall view, from the individual as well as to the heterogeneity of the training group (Veteška, 2013).

Developing social competences of seniors with a disability through the Happy Senior program

It is necessary to develop more adaptable social competences in seniors with a disability in order to improve their quality of life and to minimise the negative consequences of their disability. Social training can be very beneficial because the competences to manage a wide range of social situations provides a certain protection in stressful situations, tensions and conflicts. A reasonable level of social competences significantly determines the ability to cope with daily stress, to create good and non-conflictive interpersonal relationships, and to find more efficient ways of solving conflicts and misunderstandings. Socially competent people play an active role in their life, they can express their needs and they achieve their personal aims (Liberman, Derisi, Muesser, 1989, Praško, Možný, Šlepecký, 2007, Wilkinson and Canter, 2005).

The social competences of individuals is equally related to their social life and feeling of being healthy. The training of social competences can also provide possibilities on how to avoid and reduce stressful situations. It supports their efficient psycho-social performance and interpersonal relationships. In this way, they start participating actively in the society that provides them new options and other suitable models for their social learning. New interpersonal relationships can help to improve adaptability, to see personal performance aims in a more realistic way and also to express deep, hidden feelings. The group form of social training can help them to solve their problems because the principle of 'more heads, more ideas' is valid here (Liberman, Derisi, Muesser, 1989).

Currently the development of social competences has been at the centre of attention in many areas of social practice. Programmes aimed at developing social competences have become a part of lifelong education and psycho-therapeutic procedures. In our work we understand social competences as part of a wider range of educational activities. It is a practical activity that supports the process of (social and cognitive) learning based on interpersonal experience and emotional feelings. Its basic principle is the purposeful and organised development of social behaviour. The training of social competences follows changes in social behaviour. This approach does not try to change the personal character or experiences of the individual. As people become more socially competent, changes can occur in other areas of their life. Because they are more effective in their social interaction, they are able to act in different social situations, their self-perception and self-confidence are much stronger, and they start to believe more in their own skills.

Nowadays, all programmes based on functional development of social behaviour aim their strategies of acting on three important areas of personality (Zelinová, 1997):

1. Abilities, intellect and thinking – a cognitive approach
2. Emotions, feelings and experience – an experiential approach
3. Behaviour – a behavioural approach

Currently specialists have been trying to connect different areas and theories of professional help with the aim of finding more effective ways of intervention. This approach is based on looking for similar features and methods. For example, one such approach regarding the training practice is the eclectic approach – integration or combined usage of different methods, tendencies and schools in order to help people more effectively (Popelková, Zaťková, 2009).

A very effective model of social training is based on the cognitive behavioural approach. We prefer this model in our work as well.

The training of social competences can be carried out in individual or group form. The individual form allows us to concentrate on the specific problems of the participant. This way is preferred when we work with a person with a disability or a person who has problems with joining a group (Wilkinson, Canter, 1982). However, the group form has several advantages. One of its biggest benefits is that the group creates a social

situation which is already 'a real situation'. There are different types of people and this is a positive aspect in role playing and providing feedback. Members of the group represent different models and they can help others to realise that the model of the coach is not the only 'correct' one there. This form of learning is more effective when the models have features similar to the observer/participant of the training (Bandura, Grusec, Menlow, 1967, in: Wilkinson, Canter, 1982). The group form of training allows the participants to meet different types of people and to practise new competences. These sessions can help participants to feel more self-confident. If there are more advanced people in the training session, they can influence the expectations of the others in a positive way.

The *Happy Senior* training programme is part of a research project of The Scientific Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences: no. 1/0176/15 *Paradigms in the education for disabled adults and seniors in the residential care*.

This project was basic research and the model of our proposed training programme did not go through the experimental verification. Other outputs of solving the given research project were published in several works by Határ (2016), Müller de Morais, Jedličková (2015), Müller de Morais, Rapsová (2017), etc. The model of the *Happy Senior* training programme is created on the basis of the training manual of social competences by Wilkinson, Canter (1982). We also applied our own longtime experience in carrying out training of social competences in different age groups. Moreover, it is inspired by the works of: Beck (1999); Ellis (1999, 2001); Friedman, Thase and Wright (2008), Mahoney (1974), etc. We hope that some ideas and methods of our training programme model can also be applied in the education of seniors with a disability in the Australian context.

The model of this training programme is based on the cognitive behavioural approach which has two central principles: first, our cognition has a significant impact on our emotions and behaviour: we act as we behave, it can strongly influence our thinking patterns and emotions. Second, the desired change in behaving and acting can be achieved by a change in thinking (Wright, Basco & Thase, 2008). The cognitive behavioural approach is based on the theory that the cause of psychological difficulties is found in wrong ways of thinking and behaving

which are taught and kept by outer and inner factors. People are able to re-learn these wrong ways of behaving, or they can learn newer, more suitable ways of behaviour which will enable them to adapt themselves to different situations more effectively and to solve their problems. Over the course of several decades, many behavioural methods have arisen (e.g. methods of creating new behaviour, methods of changing existing behaviour, operational conditioning, etc.) as well as cognitive methods (e.g. cognitive restructuring, self-briefing, etc.). They have a wide application not only in the therapeutical approach to the treatment of mental disorders but also some of them have been applied to the training of social competences and developing of social competences of the wider population. Social training as a model social situation is based on the assumption that there exists the process of cognitive and social learning in every group interaction. After completing the training, the acquired social competences and components of social behaviour can be applied to real life by means of transferring them from the model situation.

The *Happy Senior* training programme is based on the interpersonal experience of the participants in the training group, its cognitive processing and the accompanying emotional experience. It depends mainly on the purposeful and organised development of the components of social behaviour and on increasing the social competences of participants in the training programme.

The program aims to increase social competencies by developing social skills and knowledge in five key areas:

1. Knowing themselves and others
2. Interpersonal communication
3. Understanding their emotions
4. Solving conflicts and coping with difficult situations
5. Being more

These individual parts of the programme are mutually independent.

The contents of this programme should be manifold, fulfilling specific features, requirements, interests, current needs and aims of the participants in the training group. We recommend carrying out this training in the form of small social groups and to divide the traditional group session into six parts:

1. Warming up the group.

After arriving, members of the group get acquainted with the new situation, establishing a feeling of safety and certainty within the group. Help them to understand any new conditions and start relaxing the group by means of some warm-up exercises. You can use the warm-up exercises as an introductory part of the training programme and a complement to other activities as well. Particular types of warm-up exercises can be created in order to practise different aspects of behaviour.

2. Instruction.

Every group session should be based on a certain topic (social competences), which can be related to nonverbal or verbal behaviour. The first step of training social competences to be achieved is letting the participants feel the need or desire to acquire the given social competences and understand its benefit. The task of the coach is to describe the given behaviour in detail and to explain its importance. The coach will explain to the participants why it is necessary to use this competences in the social interaction; what advantages are connected with its acquisition and what disadvantages we may meet if we do not know or do not use these expressions of behaviour. It is possible to create the need or desire to acquire social competences by means of a dialogue or discussion about the advantages of using them, or by using a film or video recording. It is very important that the coach gives clear and understandable instructions presented on the basis of examples, which should be similar to the situations the participants experience and should be expressed in a language that the participants understand without any problem. The instructions are not only given to inform participants about the social behaviour, but should also provide the basis for any subsequent training and role-play. The participants should be aware of what they are supposed to do during the role-play before taking part in them.

3. Modelling.

The essence of modelling is the performance of a social competences by means of a living or symbolic model. It is subsequently followed by specific training of the given social competences. The training of the social competences starts in such a way that two volunteers are asked to perform the given social competences. Feedback is very important

at this step. In this way useful information can be provided to the participants about their behaviour, what they are doing correctly or incorrectly, and what they lack the most so that they can correct and improve their behaviour. After practising there should follow a discussion where we can analyse their behaviour, look for the best ways for using the social competences, or some alternative options. Modelling and practising the behaviour of participants necessarily needs guiding and controlling by the coach of the training, mainly by means of verbal instruction and feedback on social learning.

4. Role-playing.

The main component of training social competences is the training of behaviour. After the instructions and performed behaviour (competences), participants play out short scenes that simulate real life situations. The task of the coach is mainly to deal with the preparation of a suitable environment for role-playing. When everything is ready, the coach should explain to the participants which type of specific behaviour will be practised. In this way, the participants can concentrate better on the practised behaviour during the scene, and provide feedback later.

5. Strengthening.

When all participants have received information about a certain social competences by means of instructions and models and they have practised the given behaviour, their skills will be improved on the basis of strengthening. Strengthening can take the form of positive or negative feedback which will provide participants with information about their behaviour and a reward (appraisal), or we can use another form of evaluating. The coach and other members of the group can provide feedback. If the feedback is provided by the participants of the training group, the coach should prepare them in advance to be positive so that their feedback is helpful for all the group. The process of providing feedback can have a significantly positive influence. It provides an opportunity to practise direct communication with others and it helps other members of the group to concentrate on the shared activity. It unifies them and also increases the possibility of learning to observe the behaviour that they were just learning. Concerning rewards, we can use verbal rewards (praise and encouragement) or non-verbal rewards (nodding in agreement, a tap on the back, some applause) or we can use other forms of reward (stars as rewards, etc.) The systematic use of

feedback and rewards can shape the individual in the correct way and it increases the probability of repeated occurrence.

6. Giving homework.

By means of this training, participants will have acquired social competences in the model situations. Therefore it is important that they apply them in real life. Giving homework provides an opportunity to try newly acquired ways of behaviour in real situations and in this way they can transform the competences acquired during the training sessions into their own environment. It is useful to write down the setting of homework on paper or in an exercise book. We can ask the participants to record their performance and take notes of everything that was happening during the practise of the given task, and their success, feelings, and difficulties with which they had to cope. Taking a note of homework enables them to monitor their own behaviour and also provides useful information to the coach who can subsequently give feedback to the participants in future sessions. Noting homework together with subsequent feedback can be a very powerful tool for improving behaviour.

The constellation of the group session can change according to the situational and individual needs of participants. The particular tasks, activities and breaks that are included in the training, work according to the preceding analysis of the group situation, depending on the needs of the participants and the type and degree of their disability.

We recommend carrying out the *Happy Senior* training programme in small homogeneous groups (according to their disability). Each part requires 10 sessions. The sessions should be regular, taking place once a week. The length of these meetings depends on the health condition of the participants. If it is possible, we recommend 60 minute sessions.

A group of up to 15 participants represents an optimal group for developing social competences. Smaller groups can mean more intensive work for the individual. Groups of 3 to 5 participants are the smallest groups where training is still possible (Hermochova, 1982).

From the point of view of effectiveness, a training plan of 8 to 12 sessions with a normal group size is considered to be one ‘presentation’ of the different ways of developing social competences. However, working with disabled participants requires certain modifications of

time schedules according to their type and degree of disability. We suggest a longitudinal programme (a total number of 50 sessions) where long-term effects can be expected.

The group sessions should take place in a room where there is enough space for the free movement of participants and for role-play. There should be carpet, comfortable chairs, and a blackboard or flipchart (boards on the walls are also suitable). Privacy is an important factor of these sessions and therefore sessions should not be interrupted by many observers.

When creating the aforementioned training program, we applied several principles which are based on the principles of working with individuals with special needs (Jesenský, 2000; Jedličková, 2014). It is also necessary to respect these principles in the subsequent application of the programme in the target group of seniors with a disability:

1. *Principle of humanity and respect of human dignity of people with a disability:* this is the most important principle; that is, above all the other mentioned principles because it influences all educational activities. We always have to keep in mind that we work with people who, despite their disability, want to keep their human dignity and they deserve our respect. The coach of the training programme is supposed to be sensitive, empathic, tactful and tolerant of the target group. At the same time the coach should try to have a positive and balanced attitude to seniors and be willing to help them to achieve any personal aims and solve any problems and difficulties.

2. *Principle of purposeful proceeding and performing:* it is important to consider all interventions and components which form the educational process. We must not forget about personal interests, motivation or participation of the person with the disability in solving the given task. Intentionally established situations must be guided and completed by spontaneously acted means.

3. *Principle of well-being, rationality, emotionality, adequateness and prevention against stress:* we must avoid overly high requirements and stress during the educational intervention. Activities should become gradually more complicated. It is also necessary to alternate work with relaxation and to establish a positive atmosphere. Educational actuation should represent prevention against undesirable phenomena, mainly the arising and development of defectiveness.

4. *Principle of respecting the needs of people with a disability, plurality and comprehensiveness of the educational actuation:* is based on the fact that adults with specific educational needs already have a formed personality. They usually know what they need and it is important to respect that.

5. *Principle of activity, independence, assertiveness and emancipation:* represents the abilities, qualities and states where people with a disability usually have a low performance score. It is connected with underestimation and depressive states resulting from an inability to accept their disability or distortion. It is possible to overcome these states with the help of suitable means.

6. *Principle of applying re-educational and compensative methods, technical conditions and marketing of educational services:* this is an adaptation and modification of the conditions of education regarding the type and degree of disability and the use of compensation and rehabilitation aids.

7. *Principle of dominance and complementarity of tasks, means and institutionalisation:* during the educational intervention, depending on its character and tasks, different approaches, means and forms can be used. Some components will have a dominant position and this dominance influences the effectiveness of the chosen means. An important task of the coach of the training programme is to determine and regulate this dominance.

8. *Principle of integration, partnership, support and solidarity:* the basis of this principle is to support the integration of people with a disability into a society of people without disabilities or people with similar disabilities. It can help them to get rid of isolation, segregation and defectiveness.

9. *Principle of union of educational, rehabilitative and social actuation:* the education of adults or seniors with a disability should be related to their rehabilitation or social intervention. Therefore, the differences between the educational, rehabilitative and social actuation should not be big, but instead complement each other. Competent specialists should be able to cooperate mutually and coordinate their actuation in favour of supporting the personal development of person with the disability.

10. *Principle of subsidiarity and participation:* this is a requirement to approach the educational actuation in ways that can be carried out in every

environment wherever people with disabilities live. At the same time, this principle requires some adjustment of local conditions and adequate schooling of people who are in daily contact with people with disabilities.

The effectiveness and success of educational-rehabilitative programmes is influenced more by the psychosocial components than any existing disability or illness. In this target group, often we see apathy and resignation present, as well as a decrease of performance conditioned by the organic changes of the brain, which reduce and complicate the effectiveness of the educational-rehabilitative actuation. However, it is possible to overcome this. We can achieve this by determining small and easily accessible aims. The steady results form the most important motivation in the area of education, activation and rehabilitation of seniors (Vítková, 2006).

In order to have effective group training, two coaches are usually recommended. One coach deals with the contents of exercises. The other coach is responsible for developing the dynamics of the sessions. (Komarková, Slameník & Výrost, 2001). The ideal combination for providing models is represented by coaches of any gender. However, two coaches of the same gender can provide effective training as well (Wilkinson, Canter,1982). At least one of the coaches should have greater experience with working with seniors with disabilities and with leading social training. It is not enough that coaches are enthusiastic about their work, they should have social competences to work with seniors with disabilities and to cope with difficult and critical situations. They should also have skill in leading group therapy (Dobeš, Fedáková, 2006).

This approach of training social competences is based on ongoing, regular evaluation of behaviour and improvement of every participant after every training part. The evaluation should be aimed at the process of training (how participants acquire new social competences) as well as on the result (how they use these competences in everyday life). In this way we can see if participants have obtained a higher level of social competences (Lieberman, Derisi, Muesser, 1989). For example, at the end of our programme one participant was able to listen to others and provide them with feedback. We could see her increased social competences through her active participation in conversation, and she was not afraid to ask for help and to reject unacceptable requirements.

According to Lieberman, Derisi and Muesser (1989), the best way how to find out if the training is running well is to frequently evaluate the

progress with role–play, involving every participant after each session. Participants also reply to questions and they evaluate the course and activities done in the session. When analysing their answers, we can also use other evaluating methods: the casuistic method, observing method (direct, hidden or mediated), method of dialogue (free or structured), techniques of regulating the behaviour (contract methods, forming, self-instruction, systematic strengthening and modelling, role playing, etc., in: Škorvagová, 2016).

Conclusion

All educational activities for seniors are based on the fact that people are able to learn and be creative throughout the ageing period into old age, a time when learning has its specific requirements. These need to be taken into consideration because they are decisive in the effectiveness of education. We agree with the opinion that the preparation of seniors for old age and also their knowledge about healthy lifestyles could significantly influence the quality of their later life in the future.

Educational activities at the senior age provide a feeling of dignity. They contribute to the satisfaction and fulfilment of psychological and social needs, and to the integration of the individual in society. They also help seniors to cope with new tasks and activities more easily and they provide a better quality of life. In the educational process seniors receive new information which subsequently enables them to be more balanced psychologically because they get an overview about their everyday life. There is also the possibility of having a more satisfying later life. Educational activities in senior age contribute not only to the autonomy, dignity and life self-realisation, but are also significant for maintaining and improving health (Veteška, 2016).

The results of certain research (Hrapková, 2011) confirms that older people who continue with their education and have a new life programme at their disposal, feel better and more vital physically and mentally. They suffer from less depression and find new meaning and dimension to life.

Határ (2014) says that many older people with a disability who need the help and care of other people due to their disability, often resign to finding a new perspective in their lives. The fact remains that psychological, social and biological factors influence the quality of life

of every individual in senior years. Therefore it is important to provide conditions to seniors so that they can live the autumn of their lives actively. In order to achieve this, psychological and educational activities (e.g. the *Happy Senior* training programme) can be useful because they have a certain activating energy which can help older people to participate in an active social life again and develop their personal potential according to their possibilities.

Social competences developed by means of the *Happy Senior* programme help older people to know themselves better and to be more successful in their interpersonal relationships with other people.

Lastly we would like to emphasise that this programme can be applied, not only in the European context, but universally in all cultures because it is based on generally valid principles of social training and on the cognitive behavioural approach that is an internationally accepted approach in medicine, psychology, education and science. This programme has an eclectic character and in its training practice we can use effective methods from different tendencies and schools. All modifications are related only to the specific needs and requirements of a particular training group and its individual members. The general principles of this programme can also be beneficial for Australia and other continents.

This study is part of the research project of The Scientific Agency of the Ministry of Education, Science, Research and Sport of the Slovak Republic and the Slovak Academy of Sciences: – no. 1/0176/15 – Paradigms in the education for disabled adults and seniors in the residential care.

References

Balogová, B. (2009). *Seniori v spektre súčasného sveta*. Prešov: Akcent Print.

Beck, A.T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York, NY: Harper Collins Publishers.

Cohen, G. D. (2001). *The Creative Age*. New York, NY: Harper Collins.

Crawford, D. L. (2004). *The Role of Aging in Adult Learning: Implications for Instructors in Higher Education*. http://education.jhu.edu/PD/newhorizons/lifelonglearning/higher-education/implications.

Čornaničová, R. (2007). *Edukácia seniorov*. Bratislava: UK.

Dienstbier, Z. (2009). *Průvodce stárnutím aneb jak ho oddálit*. Praha: Radix.

Dobeš, M., & Fedáková, D. (2006). *Akí sme? Program na rozvoj sociálnych kompetencii žiakov*. Košice: SVU SAV.

Ellis, A. (1999). *How to Make Yourself Happy and Remarkably Less Disturbable*. San Luis Obispo, CA: Impact Publishers.

Ellis, A. (2001). *Feeling Better, Getting Better, Staying Better: Profound Self - Help Therapy For Your Emotions*. San Luis Obispo. CA: Impact Publishers.

Friedman, E. S., & Thase, M. E., & Wright, J. H. (2008). Cognitive and behavioral therapies. A. Tasman & J. Kay & J.A. Lieberman & M.B. First & M. Maj (eds.), *Cognitive and Behavioral Therapies. Psychiatry*. Third Edition (1753-1777). UK: John Wiley & Sons, Ltd, Chichester.

Határ, C. (2014). *Kvalita života inštitucionalizovaných seniorov v edukačnom kontexte*. Nitra: UKF.

Határ, C. (2016). *Sociálny andragóg v systéme starostlivosti o inštitucionalizovaných dospelých a seniorov (nielen) so zdravotným postihnutím*. Nitra: UKF.

Hermochová, S. (1982). *Sociálne-psychologický výcvik: příspěvek sociální psychologie k metodice práce s přirozenou skupinou*. Praha: SPN.

Hrapková, N. (2011). *Štúdium na univerzitách tretieho veku – podpora kvality života*. https://cdv.uniba.sk/fileadmin/cdv/U3V/studijne-materialy/Hrapkova-studium-na-utv.pdf.

Jedličková, P. (2014). *Edukácia zdravotne znevýhodnených dospelých a seniorov v rezidenciálnych zariadeniach*. Nitra: UKF.

Jesenský, J. (2000). *Andragogika a gerontagogika handicapovaných*. Praha: Karolinum.

Komárková, R., & Slaměník, I., & Výrost, J. (2001). *Aplikovaná sociální psychologie III*. Praha: Grada.

Langmeier, J., & Krejčířová, D. (2006). *Vývojová psychologie*. Praha: Grada.

Liberman, P., & Derisi, J., & Muesser, T. (1989). *Social skills training for psychiatric patients. Eknsford*, NY : Pergamon Press.

Mahoney, M. J. (1974). *Cognition and behavior modification*. Cambridge (Mass.): Ballinger.

Mühlpachr, P. (2004). *Gerontopedagogika*. Brno: PF MU.

Müller de Morais, M., & Jedličková, P. (2015). Výcvik sociálnych spôsobilostí pre dospelých a seniorov so zdravotným postihnutím v rezidenciálnych podmienkach. *Andragogická revue, 7* (2), 4–12.

Müller de Morais, M., & Rapsová, L. (2017). *Tréning sociálnej kompetencie dospelých a seniorov so zdravotným postihnutím*. Praha: ČAS.

Popelková, M., & Zaťková, M. (2009). *Podpora rozvoja osobnosti a intervenčné programy*. Nitra: UKF.

Popelková, M., & Sollárová, E., & Zaťková, M. (2003). *Intervenčné programy v príprave pracovníkov v pomáhajúcich profesiách*. Nitra: UKF.

Porubská, G., & Határ, C. (2009). *Kapitoly z andragogiky pre pomáhajúce profesie*. Nitra: PF UKF.

Praško, J., & Možný, P., & Šlepecký, M. (2007). *Kognitivně behaviorální terapie psychických poruch*. Praha: Grada.

Prusáková, V. (2005). *Základy andragogiky*. Bratislava: Gerlach Print.

Seidler, P., & Kurincová, V. (2005). *(In)akosti v edukačnom prostredí*. Nitra: PF UKF.

Škorvagová, E. (2016). *Preventívne a intervenčné programy v kontexte sociálno-patologických javov - preventívny program Slnečnice nádeje*. Žilina: Žilinksá univerzita.

Teaching older adults. (2018). http://www.euromedinfo.eu/teaching-older-adults.html/

Vágnerová, M. (2000). *Vývojová psychologie*. Praha: Portál.

Veteška, J. (2013). Proměny a kvalita života seniorů v evropském kontextu. C. Határ (Eds.), *Vplyv edukácie na kvalitu života seniorov* (124-155). Nitra: UKF.

Veteška, J. (2016). *Gerontagogika: psychologicko-andragogická specifika edukace a aktivizace seniorů*. Praha: Česká andragogická společnost.

Vítková, M. (2006). *Somatopedické aspekty*. Brno: MU, PAIDO.

Wilkinson, J., & Canter, S. (2005). *Social Skills Training Manual. Assessment, Programme Design and Management of Training*. Hoboken, NJ: Wiley, John&Sons, Incorporated.

World Health Statistics (2007). https://www.who.int/whosis/whostat2007.pdf?ua=1.

Wright, H., & Basco, M., & Thase, M. E. (2008). *Učenie sa kognitívno-behaviorálnej terapii*. Trenčín: Vydavateľstvo F.

Zanovitová, M. (2015). *Vybrané aspekty starostlivosti o seniorov*. Martin: Univerzita Komenského v Bratislave.

Zelinová, M. (1997). Socialno-psychologicky vycvik. *Rodina a škola, 41* (9), 5 – 7.

About the authors

Marianna Müller de Morais works at the Department of Education at Constantine the Philosopher University. It carries out

personal development trainings with emphasis on social and personal competences and performs psychological counseling. She has completed systematic training in cognitive-behavioral therapy according to EU criteria. She is a member of the Association of School Psychology of the Slovak Republic and a member of the ABS Institute for Training in Cognitive-Behavioral Therapy.

Lucia Rapsová works as an internal doctoral student at Constantine the Philosopher University. She leads seminars based on the social communication, psychohygiene and psychological counseling. In the field of research and development, she focuses on the development of social competences in various target groups.

Contact details

doc. PaedDr. Marianna Müller de Morais, PhD. (née Hupková)
Department of Pedagogy
Faculty of Education
Constantine the Philosopher University in Nitra
Dražovská cesta 4
949 74 Nitra
Slovak Republic

E-mail: mmdmorais@ukf.sk

Australian Journal of Adult Learning
Volume 59, Number 2, July 2019

Book review

The beautiful risk of education

Gert J.J. Biesta
Paradigm Publishers, 2013
ISBN 978-1-612-05027-0

Reviewed by Liz Stewart

Deakin University

Considered a third contribution to his wider oeuvre (see also Beyond Learning: Democratic Education for a Human Future and Good Education in an Age of Measurement) on interrogating education and democracy, in The beautiful risk of education, Biesta presents a compelling critique on the current state of education in the 21st century. Drawing on Deweyan, Derridean, Arendtian and Rancièreian ideas of emancipation and education, the book is organised into seven thematic chapters – creativity, communication, teaching, learning, emancipation, democracy and virtuosity, united with an edifying epilogue: for a pedagogy of the event.

Cent rally, he takes up a theme introduced in his previous works – the 'we akness of education'. By this, Biesta means to challenge the notion that education can, or should be, a systematic, mechanistic and risk-free, activity. Rather, he argues that risk is, always has been, and certainly should be, at the heart of meaningful education. If acceptance (and god forbid,

embracement) of this inherent risk makes education 'weak' in the eyes of policy makers obsessed with predictable metrics and inelastic data analysis, then this represents a denial of education's very constitution. Biesta thus reasons that to eliminate risk from education is not merely paradoxical but a pursuit based on an inherently faulty premise. Eradicating uncertainty in our education systems, policies, institutes and pedagogies is not only antithetical to meaningful learning but is an ultimately irresolvable objective.

This argument evokes a sense of the Taoist philosophical spirit that resonated with my philosophical leanings. A branch that is hard and stiff is not strong by virtue of its brittleness. Rather, it is the supple sapling with its yielding fibres that is truly strong; it bends easily in the breeze adapting to the vicissitudes of the changing environment. Surely, in today's unstable political, economic, social and environmental climate, we want our education systems to cultivate learners, educators and policy-makers flourishing in their flexibility.

Central to Biesta's chief argument is the role that human desire plays in the modern 'market' of education. He maintains that what is desired is not always desirable (p. 55). That is, whilst desire is not inherently negative (indeed, it serves numerous useful motivational purposes), when our desire for education and learning becomes conflated with our contemporary obsession with the incessant acquisition of material goods, the ontological foundations of education become vastly misunderstood and misrepresented. Under this kind of commodified and 'medicalised' regime of education, '… the educational way, the slow, difficult, frustrating, and weak way, may therefore not be the most popular way in an impatient society' (p. 4). Biesta explains that eschewing the inherent weaknesses in education therefore has massive implications for human emancipation if education is about not just reproducing existing ways of being and knowing in the world but about being free to learn new ways of being and knowing in and about the world.

He takes up this idea in further detail in his chapter on creativity defined as the '… act of bringing something new into the world' (p. 11). Creativity is therefore positioned as somewhat antithetical to certainty. Drawing on Dewey, Biesta cautions us that certainty always begets some form of trouble. It is therefore an education which embraces creativity over certainty that might get us out of such snafus – whether they relate to our identity or broader notions of subjectivity and meaning.

Drawing on the Deweyan link between meaning-making, communication and participation, as relates specifically to individual and group transformation, Biesta makes the case for shared understanding as being the outcome of communication in democratic education rather than the starting point. He argues for a 'weak communication' – one informed by openness and risk. To both 'receive teaching' and 'to learn' (which, he argues are not necessarily mutually inclusive) is to '… welcome the unwelcome, to give a place to inconvenient truths and difficult knowledge …' (p. 55). This perspective, Biesta argues, has implications for teacher identity and valuation in education systems preoccupied with administering predefined, standardised and 'objective' competency criterions. Specifically, a student is conceptualised not as a consumer but as the recipient of the 'gift of teaching' which involves teachers asking difficult questions and students confronting the inherent uncomfortability associated with perpetually questioning our desires. This includes problematising the very nature of learning as being itself a somehow 'natural', ontogenetic process.

Drawing on both Foucauldian and Rancièreian conceptualisations of knowledge/power links and emancipation, respectively, Biesta argues that learning must itself be problematised within a broader socio-political and economic context. This analysis includes a robust interrogation of the role of language in shaping taken-for-granted discourses of learning. He somewhat audaciously draws on Arendt's seemingly contradictory view that in addressing crises of education, politics and education ought to be divorced from each other. By critiquing the assumptions underlying the developmental views of education which inform Arendt's argument for an education–politics divide, he deftly adds rigour to his own analysis. This underscores the assiduousness with which he treats his thesis. Education and politics are inextricably connected when education is viewed as more than a natural evolution.

Biesta's choice of the word 'weak' is an intentional and clever linguistic device. In using it he implores us to dismantle the hoary connotations of 'strong' that permeate the hegemonic political rhetoric of education. A new definition of strength must emphasise risk, vulnerability, subjectivity, multiplicity and creativity. An ambitious aim? Perhaps. But as Biesta reminds us, a '… philosophy of education must always make place for that which cannot be foreseen as a possibility, that which transcends the realm of the possible' (p. 52).