

ASCILITE 2024

Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Using a behaviour-centred approach to successfully design with and implement new or existing technology enhanced learning (TEL) pedagogies

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Educators have come to rely on the use of technology enhanced learning pedagogies as a means of achieving better student learning. As such, the application of TEL pedagogies has grown to address a range of teaching and learning challenges, despite a mixed body of evidence documenting its effectiveness. A behaviour-centred approach can improve the likelihood of effectiveness of such pedagogies by targeting the design of TEL to the specific behaviours educators want to see their students perform during learning. This approach takes into careful consideration the nature of the challenge that TEL is destined to address, the specific preferences, motivations and needs of students, the method of implementation, as well as the measurement of impact. In this workshop, we offer a range of practical and theoretical tools drawn from the behavioural sciences and encapsulated in an evidence-informed framework of behaviour change—the BehaviourWorks Australia Method—to demonstrate that the efficacy of TEL pedagogies can be optimised via a rigorous process. The Method has been tried and tested across hundreds of industry projects, and can be applied equally as effectively in the context of education, with the purpose of successfully designing and implementing new or existing technology enhanced learning pedagogies.

Keywords: behavioural science, teaching and learning, behaviour change, expert elicitation, professional development

Bringing behavioural science to technology-enhanced learning

Technology-enhanced learning (TEL) refers to the application of information and communication technology to support, and enhance, teaching and learning processes (Shen & Ho, 2020). The exponential rise of TEL within the higher education landscape has led to advances, such as augmented or virtual reality, gamification, mobile learning, and massive open online courses (Choi-Lundberg et al., 2023). Preliminary findings indicate that specific TEL modalities may significantly enhance student motivation and self-efficacy (Haleem et al., 2022; Hellín et al., 2023), and that higher frequency of use and student engagement with TEL may be associated with greater academic achievement (Dunn & Kennedy, 2019). To date, the alluring promise of TEL in higher education has been one of providing greater flexibility in learning for students and teachers, offering additional opportunities for collaboration, the potential to create tailored learning experiences, and preparing students for an increasingly digital world (Haleem et al., 2022).

Despite this promise of enhanced teaching and learning, the body of evidence on its benefits is heterogeneous, with some literature demonstrating a lack of success when implementing TEL. Several studies report the use of virtual learning environments and gamification – two popular TEL approaches – to have no significant effect on academic performance (Chowdry et al., 2014; Murillo-Zamorano et al., 2021; Rashid & Asghar, 2016). More concerningly, findings suggest that when student-specific barriers and concerns about the use of TEL are not addressed, the implementation of digital approaches may exacerbate inequalities within the student cohort and worsen the learning experience (Buhl-Wiggers et al., 2023; Daniela et al., 2018). This problem is significant considering the time and financial resources invested in applying TEL, as well as the potential negative experiential ramifications for learners. This underscores the need to ensure that educators find a way to design and implement TEL that is focused on student-specific drivers for learning, thereby boosting the chances of successful implementation.

ASCILITE 2024

Navigating the Terrain:

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An avenue for improving the application of TEL solutions such that they are purposefully derived, designed, and applied, involves the adoption of a behavioural science or behaviour-centred approach. Behavioural science frameworks provide structured methods to understanding and influencing human behaviour, drawing on insights from psychology, sociology, and economics (Michie et al., 2014). The benefits of employing such frameworks are multifaceted: they ensure a comprehensive examination of behavioural influences, reducing the risk of overlooking crucial enablers or barriers; promote evidence-based decision-making by encouraging the integration of theoretical knowledge with empirical data; and, facilitate the development of precise and effective interventions by matching behaviour change techniques to specific behavioural determinants (Ajzen & Schmidt, 2020; D’Lima et al., 2020; Michie et al., 2011, 2014). Additionally, these frameworks enhance the replicability and scalability of interventions by providing a common language for describing behavioural challenges and solutions, while supporting rigorous evaluation processes (Michie et al., 2011, 2014; Smith et al., 2024). One such rigorous framework is the BehaviourWorks Australia Method, which comprises three main phases of work, as depicted in the figure below (Smith et al., 2024).

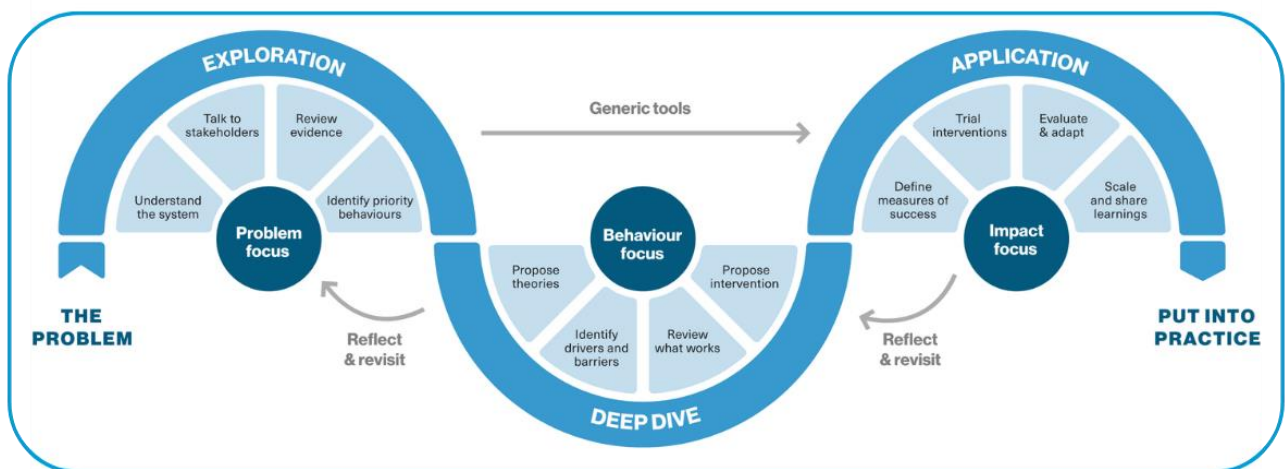


Figure 1. The BehaviourWorks Australia Method for behaviour change.

Developed by behaviour change researchers at Monash University in collaboration with industry partners (Smith et al., 2024), the Method draws on decades of behavioural science research and practice, and on ‘what works’ to create lasting change to the behaviours people need to perform to address the biggest challenges facing society, in health and the environment. The Method’s three phases of investigation are Exploration, Deep Dive, and Application.

1. **Exploration:** During this first phase there is a problem focus. The behaviour change challenge being addressed is unpacked through systems thinking, and discussed with key stakeholders to gain multiple perspectives and needs. This phase also involves a consultation of research evidence to answer questions such as “What contributes to this challenge?” It is at the end of this phase that the behaviours, i.e. who needs to do what differently, are identified, to address the problem.
2. **Deep Dive:** Having identified the behaviours that need to change, attention turns to the behaviour itself, and to understanding the drivers and barriers that encourage or prevent adoption of the behaviour by the target audience. Behavioural theories and research evidence are used to guide thinking, and to enable the selection of appropriate intervention types, such as, but not limited to, the use of technological solutions, to achieve change.
3. **Application:** Once a suitable intervention or solution has been designed and implemented, focus is directed to achieving and measuring impact. Options for trialling the intervention and collecting evidence of where change occurs are considered, with the aim of establishing fit for purpose.

ASCILITE 2024

Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Workshop Details

Objectives

In this workshop, we aim to address the conference subtheme: *“TEL Pedagogies: What can we learn from examples of success and failure in designing with and implementing old and new pedagogies enabled by technology?”* We draw on many years of experience in applying the BehaviourWorks Australia Method, and offer this Method as an example of how to successfully design solutions, including TEL pedagogies, to address a range of teaching and learning challenges, with impact.

We also draw on our many years of experience in delivering behaviour change professional development, to engage participants with the process of applying the Method and its tools and techniques, and to equip them with the skills needed to adopt a systematic, collaborative, and behaviour-centred approach to designing and applying TEL pedagogies.

By the end of the workshop, participants will be able to:

1. Understand the value of, and rationale for, using a behaviour change approach to address challenges in technology enhanced learning (TEL).
2. Become aware of common assumptions and mistakes that can occur when applying TEL pedagogies to to influence learner-behaviour.
3. Gain a clear definition and understanding of what is meant by behaviour, and how to articulate learner-behaviours clearly in the context of behaviour change.
4. Unpack and analyse challenges in TEL using a behavioural lens, including identifying priority behaviours and investigating learner-centred needs.
5. Critically evaluate, select and apply appropriate tools, techniques and frameworks to assist in the design of behaviour change interventions.
6. Consider the use of appropriate evaluation tools, such as learning analytics, to measure the impact of behaviourally-informed TEL pedagogies.
7. Experience applying key behaviour change principles and tools to a tailored education challenge using a behavioural science framework.

Structure and format

We propose to deliver a full-day workshop to share and explore with participants how the Exploration, Deep Dive, and Application phases of the BehaviourWorks Australia Method can contribute to designing and implementing solutions with TEL. We will engage participants by applying a range of behavioural tools and techniques to their own teaching and learning challenges, and asking them to collaboratively explore ideas and solutions for how to address their challenges using TEL pedagogies with each other, with a view of achieving measurable change.

The workshop content is founded on theory and research evidence, and brought to life through a variety of learning methods, including:

1. Learning material in the form of illustrative figures and frameworks, case studies and case examples, learning scenarios, brainstorming activities, and prompts for group discussion.
2. A Behavioural Toolkit hand out, containing activities and prompts for participants to apply their learning during the workshop, as well as practical summaries of the tools they have learnt for future reference.
3. Opportunities for collaborative brainstorming, the sharing of experiences with each other, and for the co-design of solutions for impact.

Every effort will be made throughout the workshop to ensure an inclusive, respectful, and non-judgemental learning environment.

ASCILITE 2024

Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

Intended audience

This session will be of interest to educators and educational researchers from higher education, qualified with either an interest or background in creating impactful learning experiences. We welcome anywhere between 10 to 30 participants for an in-person delivery, and do not restrict participation from particular sectors, levels, or industries. In fact, a broad range of vicarious and lived experiences of delivering teaching and learning will only provide a richer body of knowledge, to generate a broad range of behavioural solutions for education.

Technical Requirements

To deliver this workshop, supplies including a whiteboard or any blank wall space on which to place post-it notes, as well as technology, including a projector on which to present PowerPoint slides, will be needed. Slides will state the session purpose and objectives, the content of delivery, and a short debrief at the end. The workshop facilitators will provide materials to assist with the delivery of the session, including post-it notes, pens and markers, and the Behavioural Toolkit hand out.

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ASCILITE 2024

Navigating the Terrain:

Emerging Frontiers in Learning Spaces, Pedagogies, and Technologies

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