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Exploring technology attitudes and personal–cultural orientations as student readiness factors for digitalised work

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Abstract

Purpose – Emerging forms of digitalisation are placing new demands on workforce entrants around the globe. This study, catalysed by innovation programs in Ukraine and Latvia, conceptualises, measures and compares key facets of dispositional readiness of university students in two post-Soviet nations for digitalised work.

Design/methodology/approach – Survey data, addressing technology attitudes and personal–cultural orientations (PCO), were collected by project teams at universities in Ukraine and Latvia and delivered to the authors for analysis. The authors defined three characteristics of digitalised work, conceptually positioned five of the measured constructs as readiness factors and generated readiness profiles for the two national student cohorts. Investigation of significant differences between the groups was conducted using an Independent Samples *T*-Test. A composite profile was produced for comparing the overall dispositional readiness of both groups for digitalised work.

Findings – The factor-level profiles showed similar patterns of dispositional alignment and misalignment with digitalised work. For example, technology optimism and learning interest were reported by large percentages of Ukrainians and Latvians and tolerance for unstructured work by small percentages. However, significant differences were found in group levels of technology optimism, technology anxiety, ambiguity intolerance and empowered decision-making. In each case, the Ukrainian profile appeared more strongly aligned with the target.

Practical implications – The global digitalisation of work requires students, educators, human resource professionals and business leaders to rethink workforce readiness assessment and adapt (re)training

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programs. Technology enthusiasm and learning interest should be regarded as crucial measurable attitudes motivating technical skills development. Also, cultural orientations should be positioned alongside personality traits and digital skills as factors shaping successful human–computer interaction.

Originality/value – This study initiates a new sociotechnical and cross-cultural trajectory of technology readiness research from data generated in two post-Soviet contexts. Moreover, it positions several measurable dispositions as factors influencing student readiness for digitalised work.

Keywords Workforce readiness, Readiness for digitalised work, Technology attitudes, Information technology, Cultural orientations, Latvia, Ukraine

Paper type Research paper

Introduction

Preparing university students for success in emerging sociotechnical environments is a global concern. "Digitalised work" describes professional activity incorporating technological innovations such as machine learning, Internet of things, big data, collaborative robots, smart sensors, 3D printing and advanced interfaces among others (Geissbauer *et al.*, 2015; Rüßmann *et al.*, 2015). These technologies are increasingly being deployed across market sectors to increase system intelligence, strengthen human–machine interaction, meet sustainability targets and improve outputs (Balsmeier and Woerter, 2019; Fielke *et al.*, 2019; Xu *et al.*, 2018). Indeed, a global effort to address the COVID-19 pandemic appears to be accelerating digitalisation in the health sector (Javaid *et al.*, 2020).

Digitalised work extends beyond computers and mobile devices to virtual and augmented reality setups (Choi *et al.*, 2015), health monitoring sensors (Kaare and Otto, 2015), brain–computer interfaces (Hancock *et al.*, 2013), speech recognition and computer vision (Zhong *et al.*, 2017), dynamic augmentation (Romero *et al.*, 2016) and hybrid teaming (Richert, 2018). Formerly the stuff of science fiction and digitalisation is driven by transnational programs like Industry 4.0 (Xu *et al.*, 2018) and Society 5.0 (Fukuda, 2019). An emerging challenge for technology readiness researchers, therefore, is to explore the defining qualities of digitalised work and the new demands they place on workforce entrants. To date, there have been only scattered and early-stage responses to this challenge (Blayone and VanOostveen, 2020). Moreover, there is little agreement as to what domains the investigation of human readiness for digitalised work properly belongs (Murawski and Bick, 2017).

This study addresses this research gap by shifting the target activity from traditional forms of computer-mediated activity to digitalised work as envisioned by Industry 4.0. A critical insight is that although Industry 4.0 is a manufacturing-based discourse (Fonseca, 2018; Ghobakhloo, 2018), it showcases technologies and human–computer interaction scenarios relevant to digitalisation in other key sectors (e.g. education, retail and healthcare). Second, this study draws attention to less researched dispositional factors influencing worker readiness. On this point, digitalised environments, which increase human–machine intimacy and exhibit high levels of structural dynamism, are expected to place new social, cognitive and emotional demands on workers (Blayone and vanOostveen, 2020).

A staged, emergent strategy was adopted to address the logistical demands placed on participating research teams in participating countries (Hesse-Biber and Leavy, 2008). In the first stage, four survey data sets, addressing technology-related attitudes and PCO, were collected at participating universities in Ukraine and Latvia by associates of the sponsoring projects. In the second stage, the designated authors (1) formulated their specific research questions, (2) modelled key characteristics of the target activity and reduced the data set accordingly to a manageable set of readiness factors and (3) conducted quantitative analyses to produce, compare and interpret the dispositional profiles of the two national student groups. Before detailing this strategy, presenting the guiding research questions and reviewing key findings, the contexts of study are addressed.

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