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Surveying digital competencies of university students and professors in Ukraine for fully online collaborative learning

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ABSTRACT

Collaborative-constructivist online learning appears well aligned with Ukraine's post-revolutionary aspirations for globalised and transformed higher education. This study explores digital competencies of students and professors at Kyiv National Economic University, Ukraine, to probe readiness for fully online collaborative learning. The General Technology Competency and Use profile tool was completed by 244 participants to measure digital experience and confidence across four categories of human–computer activity. To assess readiness, reported levels of competencies were related to the three dimensions of successful collaborative learning described by the Community of Inquiry model. Despite some key differences between students and teachers, general findings include moderate-to-low levels of self-reported technical, social and informational competency, accompanied by consistently low levels of epistemological competency. These findings suggest that neither students nor teachers are adequately prepared for achieving high levels of social, cognitive and teaching presence in a fully online learning environment. It is recommended that digital-competency development become an educational priority.

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Digital competence; fully online learning; educational transformation; Ukraine; higher education

Context

Ukraine, a country with a declining population of about 44 million people (Worldometers, 2017), is a transitional post-Soviet nation (Roztocki & Weistroffer, 2015). Despite making strides towards democratisation since independence in 1991, full integration with Europe, and Western levels of socio-economic development, have not been realised (Nikolayenko, 2009; Wilson, 2013). Researchers have described Ukrainians as experiencing low self-confidence and pessimism about the future (Nikolayenko, 2009), low levels of trust (Rose-Ackerman, 2001), acute social atomisation (Pjesivac, 2014) and weak civil engagement (Way, 2014). One positive Soviet legacy is mass education: almost 30% of Ukrainians have completed higher education (Wilson, 2013).

In early 2014, two million Ukrainian protesters, initially led by university students, ousted the Russian-backed president Viktor Yanukovych, after he refused to sign a major economic agreement with the EU (Onuch, 2014). This 'Euromaidan revolution' crystallised democratic values – including freedom of expression, self-direction, universalism and openness to change (Sviatnenko & Vinogradov, 2014). In

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post-Maidan Ukraine, educational reform efforts are a high priority (Kovtun & Stick, 2009; Kutsyuruba, 2011; Kutsyuruba & Kovalchuk, 2015). New learning models aligned with democratic transformation and digital innovation are especially coveted (Powell, Kuzmina, Yamchynska, Shestopalyuk, & Kuzmin, 2015; Sharkova, 2014).

Purpose

Although not focused on cross-cultural comparison, this study evolved from transnational conversations between Canadian digital-learning researchers at the Educational Informatics Laboratory (EILAB), University of Ontario Institute of Technology (UOIT), and several Ukrainian professors at the Faculty of Economics, Kyiv National Economic University (KNEU). After a partnership was established (UOIT & KNEU, 2015), a seminal research question was formulated: Might fully online learning, like that practised at UOIT (vanOostveen, 2015; vanOostveen & Desjardins, 2013; vanOostveen, DiGiuseppe, Barber, Blayone, & Childs, 2016), offer Ukrainians an effective model for democratising learning and transforming education 'from below'? In order to pursue this question, an online pilot course was conceived, and a research team was formed to survey the digital competencies of students and professors at the host Ukrainian institution. This preparatory step was considered vital because: (a) digital competencies, developed through experience and confidence (Akaslan & Law, 2012), represent a key facet of online-learning readiness (Borotis & Poulymenakou, 2004; Machado, 2007; Mosa, Naz'ri bin Mahrin, & Ibrrahim, 2016); (b) digital competency levels have a significant impact on group functioning in online-learning communities (Gunawardena et al., 2001); and (c) profiling digital competencies has proven useful at UOIT to support students and faculty in fully online degree programmes (Barber, DiGiuseppe, vanOostveen, Blayone, & Koroluk, 2016; Desjardins, vanOostveen, Bullock, DiGiuseppe, & Robertson, 2010; DiGiuseppe, Partosoedarso, vanOostveen, & Desjardins, 2013).

The guiding research questions were formulated as follows:

(1) What digital competencies are most relevant to achieving successful participation in a fully online collaborative learning environment?
(2) What levels of these digital competencies do Ukrainian students and professors report?
(3) Are there significant differences between reported student and professor competencies?
(4) Do the competency profiles of Ukrainian students and professors suggest readiness for successful functioning in a fully online collaborative learning environment?

Theoretical frameworks

In order to address these questions, a theoretical apparatus was constructed from the literature. First, the General Technology Competency and Use (GTCU) framework (Desjardins, 2005; Desjardins, Lacasse, & Belair, 2001; Desjardins & Peters, 2007) was selected to conceptualise and measure digital competencies. Second, the Community of Inquiry (CoI) digital-learning model (Garrison, 2011, 2013, 2016) was selected to conceptualise successful social-constructivist learning. Finally, the constituent dimensions of both models were related so that reported digital competencies (measured by the GTCU) could be interpreted by the researchers as indicators of readiness (and non-readiness) for successful, collaborative-constructivist learning (as defined by the CoI).

The General Technology Competency and Use framework: a model for conceptualising and measuring digital competencies

The GTCU framework was selected owing to several strengths. First, it is an extensively theorised and operationalised, digital-competency framework developed in a university context of fully online edu-

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