



Designing and using digital platforms for 21st century learning

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Accepted: 6 November 2020 / Published online: 8 January 2021
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Abstract

This paper is written in response to the original article “*Designing for 21st century learning online: A heuristic method to enable educator learning support roles*” (Nacu et al. 2018). The article presents a guide for teacher interactions with students in networked technologies. It also serves as a guide for network designers who are concerned about the quality of online learning, and want more equitable access to systems that inspire young people “to pursue their interests and take ownership of their learning” (Nacu et al. 2018, p. 1029). During the Covid-19 pandemic, network platforms assumed a central role in the educational process. The article is a timely reminder of the importance of designing and implementing platforms that will address twenty-first century learning goals. This response to the Nacu et al. article reviews their research from a “theory of change” perspective. The authors in the original article present a heuristic that expands the online roles that educators currently use to support young people in building their knowledge. To realize the full potential of the heuristic, a more holistic approach is required, one that repositions online learning as a knowledge-building environment. A theory of change could identify the critical variables needed to help teachers and designers transition to a more comprehensive understanding of online learning. Unfortunately, heuristics by themselves do not prepare network designers or teachers to do this work. Future research can embed the heuristic in a broader, deeper effort to prepare teachers and designers to enact student-centered online learning environments.

Keywords Online learning · Equity · Theory of change

In a year when the global COVID-19 pandemic has forced many educators to suspend in-person schooling and separate teachers and students, it is critical for educators to ensure that there are robust and effective learning pathways for our youth. Written before the

Designing for 21st century learning online: a heuristic method to enable educator learning support roles by Nacu, D., Martin, C. & Pinkard, N. Published online June 7, 2018

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pandemic, “*Designing for 21st century learning online: A heuristic method to enable educator learning support roles*,” presents an approach for designing, enacting, and evaluating the digital platforms that teachers need for thoughtful exchanges with students. The authors remind us that every platform has a design and structure that shapes and influences the learning process.

A major contribution of the original paper is the expressed commitment to critical values such as equity and student agency, along with the authors’ belief that design factors can nurture these values. The heuristic they present is designed to encourage the types of exchanges that motivate student learning through thoughtful adult facilitation and social support (p. 1030). Importantly, the authors identify a gap “in terms of the sophistication of participation in activities involving creation, sharing and communication [...] particularly among youth from areas with fewer socioeconomic resources” (p. 1030). The social upheaval of COVID-19 and the national movement, Black Lives Matter, have underscored the urgency to address educational equity. The authors’ approach for taking action emphasizes the need to enable youth-directed learning through supportive adult interactions.

The “digital divide” (Warschauer and Matuchniak 2010) is a well-known phenomenon that references equitable access to technology and connectivity. Educators are also concerned about how the digital tools are actually used once students *have* that access (Warschauer and Matuchniak 2010). The authors emphasize a design approach that addresses equity concerns by building digital environments that engage students in the scaffolded development of ideas and artifacts.

Nacu et al.’s (2018) heuristic is designed to help architects of online learning environments and educators themselves understand how to support young people as “creative producers and contributors” (p 1030). The authors’ goals are ambitious; they want to provide teachers with the guidance for adopting a twenty-first century pedagogical approach. They also believe the heuristic can be used to “connect our design and analysis efforts around specific types of educator-learner interactions as well as evaluation” (p. 1034).

To guide the exchanges with young people, the authors use the Online Learning Support Roles or the OLSR framework, designed by one of the authors, to delineate roles that can be taken by teachers beyond direct instruction. “Encourager,” “Friend,” “Learning Broker,” “Model,” or “Promoter” are some of the roles they delineate to support and facilitate student learning in a way that can encourage youth to “build production skills through interest-driven, scaffolded projects, opportunities to showcase work online and in performance spaces and develop relationships with adult mentors” (p. 1034).

The authors also promote the use of the heuristic as an evaluative tool. They examine the iRemix online platform, which the authors have been designing and researching. They summarize the “Effectiveness and Efficiency Scores” indicating how frequently iRemix features were used, by role (p. 1041). The authors conclude that the heuristic serves as a method for “creators of online learning platforms to evaluate, design, and improve the system that can be implemented in early stages of design as well as for re-design efforts of more mature systems” (p. 1047).

It is instructive to analyze this heuristic from a theory of change perspective to assess whether intended changes can be realized, as presented. Theory of change models can help those designing and executing new ideas determine the conditions needed for overall implantation success. If the innovation is conceptualized from a well-planned, holistic approach that addresses critical factors, it is more likely to achieve both short term and long-term goals. Factors that might be important to consider in supporting the introduction of this innovation to formal or informal schooling systems include: teacher preparation in designing interactive online projects; teacher preparation in learning new

online roles, and pilot activities that would allow teachers to try out these new roles. Other relevant factors might include outside conditions such as organizational support. To introduce the heuristic to network designers, a different theory of change model would be needed.

The argument the authors appear to make is that the use of the heuristic will result in the construction of better and more effective platforms to use with young people. The assumption seems to be that creating platforms with this heuristic will result in teachers using the platforms to assume new roles and work with students in new ways, ways that encourage student agency and twenty-first century teaching and learning. Unfortunately, the weight of evidence, reflected in the writing of Larry Cuban (2013) and others shows that simply introducing new technology approaches does not in fact change or evolve teacher behavior.

Students need well-designed online knowledge-building and knowledge creation opportunities (Scardamalia 2014). During this pandemic, when so many students are reliant on online learning, it is important to embrace the best teaching and learning practices to engage students in meaningful learning. To create these opportunities, teachers need thoughtful preparation and support to implement new teaching behaviors (Cuban 2013; Darling-Hammond et al. 2019; Meier 2015). New roles such as “learning broker” (Naco et al. p. 1036) reflect new beliefs about teaching and new pedagogical practices that come from the learning sciences (citation). Professional learning opportunities need to model effective practice, provide coaching, and offer opportunities for reflection (Darling-Hammond et al. 2017, p. 4).

Technology platforms themselves cannot prepare teachers to succeed at this work, even when they are optimally designed and structured. The heuristic presented can certainly raise awareness and provide pathways for teachers, but more contextual support is needed. The authors make only passing reference to critical variables such as the need for professional development, implying more faith in the structural capabilities of the software to bring about change than is suggested by a theory of change.

This initiative can reach its full potential in the context of a holistic plan to define a new orientation for online learning. The learning sciences provide guidance for teaching approaches that encourage deeper learning (see Darling-Hammond et al. 2019). Any attempt to change teachers’ instructional orientation requires a sustained, systemic effort to support teachers in making the teaching shifts required. Any theory of change that involves technology cannot rely solely on the technology itself to bring about the change. The renewed call for educational equity demands that we prioritize the development of high-quality remote learning environments for all students. Network designers need to evolve their practices to address the critical transitions needed for twenty-first century learning. Future research can embed the heuristic in a broader systemic effort to prepare teachers and designers to enact the thoughtful student-centered online learning environments that all students deserve.

Compliance with ethical standards

Conflict of interest There are no potential conflicts of interest.

Informed consent No informed consent is required, because no research is directly involved.

Research involving human and animal rights No research is involved in this response and therefore no human participants and/or animals.

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Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

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