Closing Research-Practice Gaps in the Delivery of Online Teaching and Learning

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Abstract

In this article, the authors introduce four areas of practice—equity and inclusion, instructional design, assessment, and leadership—where the relationship between research and practice either fell out of step or was strained during the COVID-19 pandemic. Resonant with broader conversations about research-practice connections, neither research nor practice contexts are considered to bear the blame; the challenge emerges from the educational ecosystems we co-construct and co-inhabit. With the prevalence and complexity of online learning only growing with time (e.g., relating to OpenAI’s ChatGPT), the authors conclude by discussing inroads toward stronger research-practice connections in online teaching and learning.

Keywords: Research-practice connections, online learning, emergency remote teaching, COVID-19, educational ecosystems

Introduction

The COVID-19 pandemic was a catalyst, foisting systemic inequities to the forefront of public service. With the near-global pivot from conventional, in-person learning environments to predominantly unfamiliar, online learning environments (OECD, 2021), the exacerbation of systemic inequities formed a perfect storm of uncertainty and disruption for education systems. The circumstances faced by schools were such that emergency remote teaching (ERT) quickly permeated research, policy, and practice discourses (e.g., Barbour et al., 2020; Hill et al., 2020), referring to “the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated” (Hodges et al., 2020, para 13). However, contrary to the latter half of this definition and despite enduring educational inequities, many schools and school authorities are now exploring new opportunities for permanent online and blended models of teaching and learning.

Notwithstanding the challenges schools faced during the initial stages of the pandemic (e.g., the immediate and widespread use of learning management systems, limited access to technology by students from socioeconomically disadvantaged backgrounds), many teachers and school leaders adapted and innovated. Studies of how education systems responded to the pandemic conditions have repeatedly reached a conclusion similar to Cooper et al. (2022): “The pandemic has been a steep professional development course for educators, who have risen to the
challenge. The result has been the rapid adoption of, in many cases, highly productive forms of assessment, which otherwise may have taken years to implement.” While Cooper et al.’s (2022) focus was on teachers’ assessment practices, their study highlights that the sudden immersion in online learning environments did not generate simplistic negative or positive outcomes (e.g., see Panagouli et al., 2021). At the same time and for various reasons (e.g., fiscal and human resources), the pandemic ushered in heightened interest in the possibilities of online teaching and learning. Yet, while a substantial body of research on online pedagogy exists, the pace of change over the past two years has strained research-practice connections (e.g., Arce-Trigatti et al., 2023; DeMatthews et al., 2020). The reality is that educators were often forced to make decisions without relevant research literature, and many researchers were forced to re-envision or abandon research projects that were incompatible with ERT priorities.

As a partnership between an education researcher (SM) and a practitioner (JP), we propose that now, more than ever, is a time for concerted efforts to close research-practice gaps in the delivery of online and blended education. Without attention to how practice-based innovations can be integrated with research-informed perspectives on the delivery of online education, decision-making in this rapidly developing area will be unnecessarily constrained. Our aim with this article is to make a clarion call for strengthened research-practice connections in support of online teaching and learning. To make our case, we introduce four areas of practice—equity and inclusion, instructional design, assessment, and leadership—where the relationship between research and practice either fell out of step or was strained during the COVID-19 pandemic.1 Resonant with broader conversations about research-practice connections (e.g., Farley-Ripple et al., 2018; Neal et al., 2022), neither research nor practice contexts are considered to bear the blame; the challenge is broader, emerging from the educational ecosystems we co-construct and co-inhabit. We conclude with a brief discussion of inroads toward stronger research-practice connections in online teaching and learning.

Areas of Disconnect

To initiate our discussion about the four areas of disconnect introduced in this article, we first locate the theoretical underpinning of our argument. Our understanding of online learning follows in step with Means et al. (2014), who define it as “a learner’s interaction with content and/or people via the Internet for the purpose of learning. The learning may be part of a formal course or program or simply something learners pursue for their own interests” (p. 6). It is plain to see how this definition differs from that of ERT; online learning is about teacher-led instruction or student(s) engaging with resources over the Internet by design, not in response to an external crisis or emergency. Online learning is thus the model of education that many schools and school authorities are now exploring as a transition from ERT. At the same time, and notwithstanding the differences in what these terms convey, it is our contention that examining research-practice gaps in ERT can inform considerations about online learning, particularly for education systems that are newcomers to this model of education. But what areas warrant immediate attention? Once again, we turn to the work of Means et al. (2014), focusing on their Four Dimensions of Online Learning framework. In Table 1, we define the four dimensions and specify how each mapped to our discussion of research-practice gaps in online learning.

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1 The views expressed in this article should not be taken as representative of what occurred within any specific school or school board.
Table 1
An Adaptation of Means et al.’s (2014) Four Dimensions of Online Learning

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Definition</th>
<th>Specific Feature Considered</th>
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<tbody>
<tr>
<td>Outcomes</td>
<td>The intended and unintended results of online learning (e.g., cognitive,</td>
<td>Equity and inclusion</td>
</tr>
<tr>
<td></td>
<td>engagement, self-regulation).</td>
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</tr>
<tr>
<td>Implementation</td>
<td>The characteristics influencing how online learning experiences are enacted</td>
<td>Capacity and Perspectives</td>
</tr>
<tr>
<td></td>
<td>in practice (e.g., learning location, levels of online interaction).</td>
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<tr>
<td>Design</td>
<td>The intentional features of online learning experiences that establish</td>
<td>Assessment</td>
</tr>
<tr>
<td></td>
<td>what learners and instructors do (e.g., modality, pacing, sources of</td>
<td></td>
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<td></td>
<td>feedback).</td>
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<tr>
<td>Context</td>
<td>The continually varying set of factors within which online learning</td>
<td>Leadership</td>
</tr>
<tr>
<td></td>
<td>opportunities are embedded (e.g., field of use, provider, learners’ level</td>
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It should be noted that it is not our intention to suggest the specific features discussed below are the only ones deserving attention regarding the connections between research and practice. For instance, although we do not address the educator-related outcomes of ERT, such as teacher and school leader well-being, there is evidence that such outcomes are a point of shared concern for education researchers and practitioners (e.g., Arce-Trigatti et al., 2023). Rather, our focus on the specific features noted in Table 1 emerge from our own research-based and practice-based experiences in navigating ERT and online learning. Moreover, it could be argued that some of the specific features we discuss map to several of Means et al.’s (2014) dimensions of online learning (e.g., there are equally valid discussion points about how learning design and implementation can engage with equity and inclusion considerations). We aim to present one perspective on these topics while acknowledging that other and potentially opposing views on the nature and salience of research-practice connections in online learning exist.

**Equity and Inclusion**

As COVID-19 has become endemic, many scholars and practitioners caution against discourses such as “return to normal” (e.g., Brown, 2021)—a sentiment tantamount to ignoring the educational inequities revealed and exacerbated over the past two years. While an exhaustive account of the educational inequities spotlighted throughout the pandemic is beyond this article’s scope, some of the most prominent include widened student achievement gaps (e.g., by age group and socioeconomic background; König & Frey, 2022), intensified health and psychosocial...
challenges (e.g., anxiety and isolation; Curelaru et al., 2022), and magnified racial injustices (e.g., greater risk of severe illness and lifestyle disruption; Henry et al., 2021). Yamashiro et al. (2023) add, “we have seen tensions inflamed into outright conflict and even threats of violence over pandemic-related school closures or mandates, book bans, or bans on the teaching of critical race theory or topics related to race or racism; gender, transgender, or LGBTQ+ topics; or school violence and school policing” (p. 5). Even with the most trying period of ERT presumably behind us, the role of online learning environments in addressing and redressing these systemic inequities remains to be seen.

To be sure, educators and researchers are making inroads in online spaces, but evidence from studies of research-practice partnerships underscores that systemic change is the domain of partnered efforts (Potter et al., 2021). A recent special issue of Educational Policy (see Yamashiro et al., 2023) explored precisely this topic of how partnerships between educators and researchers can address equity issues. In brief, the picture painted by the various authors is that organizing under the “partnership” label is not enough to generate systemic change; progress requires deliberate attention to both how researchers and educators engage equity in their joint work (process/structural equity) as well as the equity impacts of that work (outcome equity; Yamashiro et al., 2023). We echo Potter et al. (2021) and contend that for in-person and online environments alike, research-practice collaborations and partnerships are necessary for the work of educational equity and inclusion.

Capacity and Perspectives

Despite the volumes of research into how online learning is organized and implemented (e.g., the structure of student-content, student-teacher, and student-student interactions; see Means et al., 2014), most teachers were not well-positioned to draw from this basis during the shift to ERT (Barbour et al., 2020). Indeed, this is precisely why ERT became common parlance; it recognizes that teachers were forced to adapt to precarious and unfamiliar circumstances (Gallagher-Mackay & Brown, 2021; Schleicher, 2020).

In a study of ERT in Ontario, Canada, Cooper et al. (2021) observed that in addition to factors such as the availability of technological resources (e.g., streaming equipment) and the extent of support for navigating the rapidly shifting policy environment (e.g., required hours of synchronous learning), teachers’ experiences with instructional design related to their technological capacity and pedagogical capacity. Technological capacity refers to teachers’ familiarity and experience with online learning environments and tools (e.g., Zoom, Google Classroom); unsurprisingly, teachers who reported greater technological capacity also reported a smoother transition to online environments. Pedagogical capacity refers to teachers’ general ability to implement and continuously adjust their instructional practice within online environments to cultivate a range of positive student outcomes (e.g., cognitive, meta-cognitive, engagement). While Cooper et al. (2021) go on to note that teachers’ technological capacity “skyrocketed during the pandemic” (p. 92), changes in pedagogical capacity were more uncertain and ostensibly, as teacher professional learning is broadly conceptualized, dependent on the individual teacher, their school, and their professional learning activities (Opfer & Pedder, 2011).

In view of this example from Ontario and the ongoing shift from ERT to online teaching and learning, we raise two concerns about the relationship between research and practice. First, in our review of the extant literature, there is limited evidence that teachers’ pedagogical capacity
has been bolstered by research into online learning or informed research priorities since the pandemic’s onset. Generally, the infrastructure to enable bi-directional flows of experience and knowledge between research and practice contexts remain underdeveloped and underprioritized. As Gorard et al. (2020) contend, if connecting research and practice is the goal, it is not enough that evidence is merely made available: “evidence needs to be modified at least to some extent, and presented actively and often iteratively” (p. 29). Second, perspectives formed about online learning during the early days of the pandemic need to be reassessed as schools transition from an ERT context to an online teaching and learning context. As Hodges et al. (2020) underscore, hurried moves online … could seal the perception of online learning as a weak option, when in truth nobody making the transition to online teaching under these circumstances will truly be designing to take full advantage of the affordances and possibilities of the online format. (para. 4)

Building effective online learning environments in the wake of ERT must begin with renewed attention to implementing evidence-informed practices.

**Assessment**

The primary purpose of assessment is to promote student learning (Baird et al., 2017), and at no other time in recent memory has this viewpoint been so clear. Throughout the initial two years of the pandemic, many school systems across OECD countries cancelled their standardized assessments (OECD, 2021). In Ontario, Canada, the Ministry of Education took things a step further by mandating that students’ grades could not fall below where they were on March 13, though grades could improve (Gallagher-Mackay & Brown, 2021). In place of the pressure to demonstrate school performance via student achievement measures, teachers were free to focus fully on student learning and how it could be buoyed despite the many challenges foregrounded and raised by the pandemic (e.g., equity concerns, student well-being, inconsistent policy communication). More generally, education systems were less vulnerable to the backwash effect, “wherein narrow and superficial teaching and learning occur because teachers and students divert attention to improving test-taking skills and test formulae” (Poskitt, 2022, p. 2).

However, the circumstances were urgent, and teachers and schools were forced to make changes rapidly in response to emergent student and family needs. Such was the case observed by Cooper et al. (2022) in their study of how Ontario secondary school teachers navigated the early stages of the pandemic, asking, “what are educational assessment essentials?” Based on in-depth interviews with 17 teachers in a variety of teaching contexts, they noted three observations: (a) the shift to emergency remote teaching positioned teachers as key players in the assessment landscape; (b) the advent of a heightened need for assessments that stem widening equity and well-being gaps; and (c) a need for attention to the still-emerging consequences from the pandemic. The first of these was a key focus of the article, leading Cooper et al. (2022) to conclude that despite teachers’ crucial assessment work—what they called emergency remote assessment—their “response was not without its challenges and for some took time to realize” (p. 14). Without question, the uncertain policy environment is partly to blame for the challenges teachers experienced, but we argue it also resulted from a lack of accessible research literature that was relevant to the challenges they faced (e.g., ensuring academic integrity, providing timely feedback).
Leadership

Almost overnight, the pandemic shifted what it meant to be an educational leader (Pollock, 2020); while the fundamentals of the profession were unchanged, the expectations and demands were not. Particularly during the initial weeks and months when pandemic policies and procedures changed rapidly in response to national health guidelines, educational leaders were “caught in the unfavourable position of being the pinch point in the system” (Harris & Jones, 2020, p. 244). Despite often being seen as drivers of thinking and change (see Harris et al., 2021), leaders had few, if any, precedents to draw from on how to lead effectively through such crises. More than ever before, leaders had to rely on and trust their followers’ insights and experiences to guide decision-making. Gumus et al.’s (2018) observation that “leadership is no longer attributed to a single person … rather, it is viewed as a more ‘collective performance’” was especially fitting within the ERT environment.

Taking one example from practice, many educational leaders quickly recognized the need to prioritize mental health and well-being among school staff and students (e.g., Hill et al., 2020). Meeting this need, however, required leaders to be immensely flexible, providing timely mental health resources and supports (e.g., creating virtual support groups, supporting staff professional development) often without readily accessible practitioner research summaries or time to attend to their own mental health and well-being (see Thomson et al., 2021). Compounding this challenge, at the onset of the pandemic, many school leaders who had never taught in online environments were expected to provide leadership without shared experience for the difficulties faced by their followers. Without diminishing the unique challenges ERT posed, the circumstances were ripe for research to provide guidance, at least on the design of online learning environments, yet the material and social resources to enable this were largely absent.

Looking Forward

The purpose of this article was to argue that relationships between researchers and practitioners deserve heightened attention as education systems, in the wake of the COVID-19 pandemic, explore permanent online and blended learning environments. To support this position, we presented four areas in which research-practice relationships were strained or underutilized, aligned with the domains of equity and inclusion, instructional design, assessment, and leadership. We grounded our argument in an understanding that the pandemic environment demanded rapid decision-making that prioritized the needs of students and their families. From there, we asserted that what practitioners needed in terms of research evidence to navigate the ERT context was, generally speaking, neither easily accessible nor developed for application in times of crisis. We also noted how the pandemic context highlighted the importance of giving attention to the priorities and problems of practice identified by practitioners, ideally through partnered efforts. Finally, as experiences with ERT are succeeded by more deliberate efforts in online teaching and learning, we stressed that online environments be viewed in the context of their use; negative perspectives on ERT should not crowd out the volumes of research into the possibilities of online learning. As Means et al. (2014) admonish, failing to recognize the differences in such concepts invites conceptual ambiguity into future research and can cause those focusing on these topics to talk past one another. Looking forward, the essential question in our view is, how can relational connections between education research and practice contexts be fostered in support of online teaching and learning?
Providing some guidance in the area of strengthening research-practice connections, Cooper and Levin (2010) suggest such efforts can involve “the creation of products (such as reports), events (such as conferences) and networks (ongoing interactions among groups of people)” (p. 361). We thus conclude with a list of opportunities under each of these headings that we believe could create benefits for researchers and practitioners alike in online teaching and learning. These suggestions are not intended to represent an exhaustive list but rather fruitful directions we have encountered through our own research and practice.

**Products:**

- Publications that blend researcher and practitioner perspectives and experiences, following, for example, in the model of recent research-informed teaching practice edited books (e.g., Brown et al., 2021; Brown et al., 2020).

- Research projects and articles in which practitioners are not merely research subjects, but rather partners in “building two-way streets of engagement…. [involving] a dynamic relationship between research and practice” (Tseng et al., 2017, p. 3).

- Online repositories that utilize evidence-informed practices in research communication to synthesize and communicate the research findings that practitioners need—in other words, “getting the right information to the right people in the right format at the right time” (Morris et al., 2014, as cited in Rickinson et al., 2017, p. 983).

**Events:**

- Evidence-informed professional learning opportunities (e.g., webinars, future search conferences) co-facilitated by researchers and practitioners on topics of shared interest. Many examples of such opportunities exist and could be adapted from the literature on research-policy and research-practice partnerships (e.g., Urick et al., 2020).

- Programming at annual meetings of scholarly and practitioner organizations that enables researchers and practitioners to connect and explore collaboration opportunities (e.g., innovate sessions at the annual International Congress for School Effectiveness and Improvement).

**Networks:**

- Connection-building systems such as Yaffle (see Memorial University, n.d.) to share knowledge and stimulate reciprocal research-practice relationships (e.g., researchers and practitioners jointly identifying areas of interest for partnership opportunities).

- Network learning activities (e.g., semi-regular professional learning sessions) that enable linkage and exchange within and between research and practice communities, while also appreciating that network building cannot be treated as a passive process (see Cooper & Levin, 2010).

Although our focus in this article was areas of disconnect between education research and practice during the ERT period of the COVID-19 pandemic, the past does not give us trepidation for what comes next. Our outlook is quite the opposite. With the growing scholarship on how education researchers and practitioners can partner effectively (e.g., Arce-Trigatti et al., 2023; Friesen & Brown, 2023; Wentworth et al., 2022), there are many opportunities to forge and
strengthen research-practice connections in support of online learning. Naturally, there will also be challenges, such as ensuring that research-practice partnerships do not reproduce ineffective systems (see Villavicencio et al., 2023) and navigating the internal politics of partnered work (e.g., Yamashiro et al., 2023). However, with the prevalence and complexity of online learning only growing with time (e.g., relating to OpenAI’s ChatGPT), there is little doubt that the opportunities of stronger connections between education research and practice outweigh any challenges.

References


Memorial University. (n.d.). About: *Yaffle is an online tool that enhances collaboration.* https://mun.yaffle.ca/about


