

Mind the (Digital) Gap: Building a Practitioner-Centered Research Agenda for K-12 Online and Blended Learning

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Abstract: Despite the prolonged expansion of K-12 digital education, existing teacher and leadership preparation programs are currently unable to sufficiently train educators for digital instruction. This review evaluates current efforts across the domains of teacher education, leadership preparation, and professional development for active educators. Although various initiatives such as graduate certificates and curriculum projects have emerged, such efforts are currently disconnected and lack adequate scope. Furthermore, the COVID-19 pandemic revealed persistent systemic deficiencies in preparing staff for the flexible delivery models modern schools require. To address these gaps, this paper presents a practitioner-centered research agenda organized around nine core themes, ranging from program architecture to emerging technologies. Advancing the field necessitates coordinated research to establish validated standards, the systemic inclusion of digital competencies within preparation programs, compulsory field experiences in digital environments, and specific policy mandates issued by accrediting bodies.

Introduction

The discrepancy between the rapid implementation of digital learning in primary and secondary education and the production of rigorous research to support such practices is a well-recognized issue within the academic community. Scholars dedicated to this field frequently acknowledge this imbalance in their publications. For instance, Barbour (2019) observed that “online learning at the K-12 level has been practiced for approximately two decades, the availability of literature and, in particular the published research, to inform that practice has not kept pace” (p. 523). Echoing this concern, Borup et al. (2020) remarked that “the [research] field of blended learning has lagged behind despite its popularity” (p. 820). Furthermore, Cuccolo and DeBruler (2025) identified a central challenge in the current body of literature, noting “that adult learners are a distinct population from K-12, and that children have specific/unique learning needs” which are often overlooked in existing studies (p. 15).

A primary reason for this persistent disconnect is that scholarly investigations frequently fail to address the practical, day-to-day challenges encountered by educators and administrators in the K-12 digital learning sector. There have been previous initiatives aimed at mitigating this gap. For example, the International Association for K-12 Online Learning (iNACOL) conducted surveys among practitioners to establish a comprehensive research agenda. This agenda identified ten priority areas intended to guide the advancement of the field between 2013 and 2018 (Kennedy, 2013). The iNACOL recommendations emphasized the need for empirical work focused on enhancing instructional design, pedagogical techniques, and frameworks for competency-based assessment.

Simultaneously, the agenda stressed the importance of ensuring that diverse student populations maintain equitable access to these educational opportunities.

Beyond instructional concerns, the iNACOL agenda suggested that researchers investigate the requirements for technological infrastructure, the implementation of change management strategies, and the various ways in which policy decisions influence quality assurance. Additionally, the framework highlighted the necessity of exploring effective models for professional development and the preparation of teachers to design, facilitate, and assist with K-12 digital instruction. However, even during the initial release of these priorities, iNACOL pointed to the inherent difficulty of conducting research within innovative and evolving educational systems. This complexity likely explains why there was minimal formal progress made toward addressing the ten specific research priorities identified in that earlier agenda.

In April 2024, the organization now known as DLAC: The Community Advancing Digital Learning (formerly the Digital Learning Collaborative) commissioned a small cohort of researchers to develop a new research agenda tailored for the post-pandemic K-12 digital learning environment. In collaboration with the project's initial leadership team, it was decided that while the agenda would be authored by academic scholars, its design would focus specifically on meeting the practical requirements of those working directly in the field. To ensure this practitioner-centric focus, two fundamental questions guided the development process: "What do practitioners want from researchers?" and "What are those practicing in the field most challenged by that research could help?"

The formulation of this agenda took place over two distinct phases. The first phase, conducted between May 2024 and February 2025, resulted in an interim report intended for practitioner review and response (see Barbour et al., 2025a). The second phase occurred from February 2025 to September 2025 and led to the publication of the final research agenda (see Barbour et al., 2025b). Throughout both phases, the project utilized two primary data collection methods: surveys and focus groups.

Surveys were employed to collect standardized data efficiently from a broad and diverse participant base (Bethlehem, 2010). These instruments incorporated Likert-style items to measure practitioner perceptions of specific topics (Jebb et al., 2021) and open-ended questions to elicit more descriptive or previously unidentified insights (Schaefer & Dillman, 1998). These surveys were disseminated through the internal communication channels of DLAC and several prominent organizations, including the Australian Association of Distance Education Schools (AADES), the Canadian eLearning Network (CANeLearn), the Michigan Virtual Learning Research Institute (MVLRI), and the Kōtuitui Online Teachers Network in New Zealand, as well as through the professional networks of the research team.

To complement the survey data, focus groups were conducted to gather more nuanced information regarding the lived experiences and viewpoints of practitioners (Brinkmann, 2014). These sessions were unstructured and open-ended, involving members of the aforementioned organizations and participants at major industry events such as Digital Learningpalooza and the Digital Learning Annual Conference.

The initial stage of data analysis involved the use of *Claude Sonnet 3.7*, a generative artificial intelligence (AI) software, to assist in generating summaries and identifying preliminary thematic patterns. Informed by these AI-generated insights, the research team then conducted a detailed analysis using an inductive framework (LeCompte & Preissle, 1993) to categorize the broad areas where educators and leaders expressed a need for increased scholarly attention. During the first phase, ten themes were identified, and a lead author from an expanded team was assigned to each to define its scope and propose research questions based on the needs expressed by practitioners. In the second phase, these categories were further refined and consolidated into the nine specific themes detailed in this special issue.

Practitioner Use and Perceptions of Research

Beyond the primary data gathered for the construction of a research agenda for K-12 digital learning, the survey also sought to capture practitioners' perspectives on and utilization of academic research. The instruments employed were adapted from a survey framework created by Penuel et al. (2016, 2017). These items specifically assessed the frequency of conceptual research applications, the perceived significance of research, and its perceived applicability to practice. To ensure the data reflected the views of practitioners rather than those within the academic community, two respondents who identified as holding research-focused positions were excluded from the analysis. The final sample of 36 participants consisted of 19 administrators or leaders, six educators, five staff members, and six individuals who identified their roles as "other".

Conceptual Applications of Research

The conceptual application of research pertains to the frequency with which educational leaders utilize research to inform their "thinking about issues and their search for solutions to problems faced by their schools and districts" (Penuel et al., 2016, p. 22). Analysis revealed that 52.8% of respondents indicated that research frequently broadened their perspective on specific topics. However, only one participant suggested that research served to expand their understanding at all times. A majority of the cohort reported that research only occasionally influenced their cognitive processes by offering a shared lexicon, suggesting alternative strategies, providing theoretical frameworks, presenting novel perspectives on challenges, or highlighting emerging issues. The use of research to identify new areas of concern was notably rare; over 80% of respondents stated this occurred either never (16.7%) or only sometimes (63.9%).

The patterns observed in this study generally align with the findings reported in the original work by Penuel et al. (2016). The hierarchy of research uses remained consistent between the two datasets. The primary divergence was that the original study by Penuel et al. found that providing a framework was ranked more highly than the suggestion of alternative solutions. A more substantial distinction, however, lies in the lower frequency of research use reported in the current study. Participants here were more inclined to report "never" or "sometimes" across all categories compared to the original sample:

- Expanding understanding (44% in this study vs. 29% in the original).
- Providing a common language (58% vs. 44%).
- Establishing a framework (71% vs. 49%).
- Suggesting alternative solutions (69% vs. 52%).
- Reimagining a problem (69% vs. 65%).
- Identifying new issues (81% vs. 67%).

This discrepancy may stem from a disparity in practitioner awareness and access; while a robust body of literature exists for traditional in-person instruction, there is comparatively less accessible research focused on blended and online learning environments.

Perceived Value and Practical Relevance

A strong majority of respondents expressed support for statements affirming the value of educational research for the broader field. Among the seven value-based metrics, the proposition that "When confronted with a new problem or decision, it is valuable to speak with education researchers" received the highest level of disagreement, though this only accounted for 22.2% of the group. Conversely, there was near-unanimous consensus (97.2%) regarding the statement: "Education research provides results that can help leaders improve educational outcomes".

Despite this theoretical endorsement of research, participants demonstrated divided views regarding its practical relevance to their professional duties. A significant majority (72.2%) identified a distinct "disconnect between the research world and the education world". Approximately one-third of the participants agreed that academic researchers operate within an "ivory tower" (33.3%) and noted that the duration of the publication process often renders findings obsolete by the time they are accessible (30.6%). Notably, most participants (72.2%) did not feel that research was too narrow in scope to be beneficial.

Obstacles to Research Integration

The literature identifies various factors that restrict the perceived relevance and utility of academic research. A recurring barrier is the lack of accessibility; researchers frequently disseminate their work in journals that require paid subscriptions, making them unavailable to many practitioners (Kostoulas et al., 2019). Furthermore, the formal structures of scholarly publishing can be perceived by teachers as overly theoretical, dense, or disconnected from the lived experience of the classroom (Ketter & Stoffel, 2008). Recent findings by Kallitsoglou and Mahmud (2023) indicate that although research can influence the adoption of new methods, many educators "found information from research the least easy to understand compared to all other sources of information" (p. 275).

School culture also plays a pivotal role in this dynamic. Educational environments often prioritize immediate, reactive problem-solving over more deliberate, research-informed strategies (Farley-Ripple, 2024). Daily schedules impose significant time constraints, forcing teachers to prioritize immediate classroom duties over

the professional reading required to engage deeply with new findings (Boeskens & Nusche, 2021). Additionally, there is often a deficit in leadership support for fostering an atmosphere where research integration is encouraged (Calucag et al., 2024). Professional development opportunities are also frequently insufficient to equip teachers with the necessary skills to critically assess and apply research (Nimante et al., 2025).

Bridging the Research-Practice Gap

The separation between the academic and practitioner spheres is a persistent challenge (Flessner, 2012; Freeman & Gies, 2009; MacGregor & Pigeon, 2023; Mohajerzad & Diekmann, 2024). This "value-practice gap" indicates that practitioners do not necessarily reject research, but rather face external constraints that impede their ability to implement what they value. While both school leaders and teachers express a desire to engage with and learn from academic research, they implement these practices far less often than their positive attitudes would suggest (Kallitsoglou & Mahmud, 2023; Procter, 2015). Indeed, van Schaik et al. (2018) noted that "the expertise of teachers is mostly based on insights they have acquired in their own practice" and that "knowledge from educational research hardly plays a role" (p. 50).

Communication barriers further exacerbate this isolation. Findings are often shared at professional conferences; however, researchers and practitioners frequently attend separate events, resulting in siloed environments where meaningful exchange is limited. Furthermore, practitioners may devalue research that contradicts their existing beliefs (Thomm et al., 2021).

Despite these hurdles, there are pathways for improvement. Researchers in the K-12 digital learning space are increasingly opting for open-access venues. One prominent example is the Journal of Online Learning Research, which serves as a dedicated, open-access platform for online and blended learning. Additionally, formal research-practice partnerships between school districts and higher education institutions can be utilized to "address current issues and imagine new possibilities for education for the future" (Farrell et al., 2021, p. 2). Such collaborations, along with professional development led by both researchers and practitioners, can facilitate the better integration of academic knowledge into the classroom (van Schaik et al., 2018). Ultimately, the relationship is symbiotic: researchers require the participation of practitioners to conduct empirical work, while practitioners benefit from evidence-based strategies, models, and instruments that can improve educational outcomes (Leat et al., 2015).

Nine Research Agenda Themes

The nine research agenda themes that were generated focused on the following areas: program architecture, instructional strategies, interaction and engagement, proximal support systems, assessment of learning, emerging technologies, special populations, student readiness and preparation, and teacher and leader preparation and development. This issue contains an invited article focused on each of these areas. You will note that we have framed the research agenda using the terminology K-12 digital learning to describe various forms of K-12 distance, online, and blended learning. We have made this decision as it is a more generic term, as well as the fact that it is consistent with our project partner (i.e., DLAC). We have asked the authors to use the same nomenclature unless making specific reference to published work where the use of a different term to refer to a specific form of K-12 digital learning was useful, important, or simply intellectually honest.

In this panel, the first proceedings by Kristen DeBruler and Kelly Cuccolo explores K-12 digital learning through the lens of program architecture, focusing on how organizational, instructional, and structural design choices shape student experiences and outcomes. In the second proceedings, Mary Rice, Ray Rose and Mark Deschaine argue that 'instruction' in online schools and digital programs is often conflated with teaching, obscuring distinctions that matter for learning and equity. In the third proceedings, Jered Borup, Leanna Archambault, Lauren Woo, and Charles Graham review and clarify what is known about learner interaction and engagement in K-12 online learning, arguing that these foundational constructs are too often studied without consistent definitions. In the fourth proceedings, Elizabeth Azukas, Amy Garrett Dikkers, and Samantha Viano examine the role of proximal and auxiliary support systems in K-12 digital learning, focusing on the human and organizational supports that exist outside the formal instructional model. In the fifth proceedings, Cecil Short, Tani Sapp, and Samaa Haniya outline a practice-oriented research agenda for assessment in K-12 digital learning. In the sixth proceedings, Dennis Beck, Doug Elmendorf, and Leonel Morgado conceptualize emerging technologies in K-12 digital learning as sociotechnical-immersive systems comprised of sociotechnical forces, environmental configurations, and instructional activities, rather than discrete tools to be added to existing programs. In the seventh proceedings, Mary

Rice and Ray Rose examine access to K-12 online schools and programs for so-called special populations through a civil rights lens, tracing how longstanding federal legislation has been unevenly enacted in digital learning contexts. In the eighth proceedings, Jason Siko, Vaughn Wilson, David Adelstein, and Michael Barbour examine student readiness for K-12 digital learning as a multidimensional and developmental construct, encompassing cognitive, behavioral, and affective capacities shaped by both individual skills and contextual supports. Finally, in the ninth proceedings, Chuck Hodges, Michael Barbour, and Keryn Pratt explore persistent historical gaps in the preparation of K-12 educators and leaders for digital teaching and learning.

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