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SPECIAL ISSUE

Understanding Instructional Design Collaboration

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Understanding Instructional Design Collaboration

Jason K. McDonald

The purpose of this journal is to bridge the gap between theory and practice by providing reflective practitioners a means for publishing articles related to the field. The journal establishes and maintains a scholarly standard with the appropriate rigor for articles based on design and development projects. Articles include evaluation reports (summative and formative), lessons learned, design and development approaches, as well as applied research. The articles are based on design and development projects as opposed to pure research projects and focus on lessons learned and how to improve the instructional design process. Rigor is established through articles grounded in research and theory.

A secondary goal of this journal is to encourage and nurture the development of the reflective practitioner in the field of instructional design. This journal encourages the practitioner as well as collaborations between academics and practitioners as a means of disseminating and developing new ideas in instructional design. The resulting articles inform both the study and practice of instructional design.

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The Discourse of Collaboration in Instructional Design

Practitioner Perspectives on the Benefits of a Cross-Organizational Collaboration Between AECT and NATO

Understanding Collaborative Design Practice Through Self-Study

About the Journal

During the past 50 years, journals in the field of instructional design have been responsive to the changing needs of both scholars and to a lesser degree, the practitioner. We have seen an evolution of AVCR to ECTJ, the emergence of JID, and finally the merging of ECTJ and JID to form ETR&D. ETR&D is a widely recognized, scholarly journal in our field that maintains rigorous standards for publications.

During the past 50 years, we have also witnessed a change in the field due in part to the success of instructional design in business and other nonschool environments. The number of instructional designers working outside the university has dramatically increased. Of particular importance is the rise in the number of instructional designers with doctorates who consider themselves practitioners, but not necessarily scholars. This growing group of designers might be best described as reflective practitioners who can make a significant contribution to the knowledge of our field.

This growth and success in the application of instructional design has also changed the field. From the early days of the field until the mid-1980's, the theory and practice of instructional design was almost exclusively influenced by the academic community. With the growth of instructional designers, the theory and practice of the field is now defined by both academics and practitioners. There is a need for greater communication between the scholars and the practitioners in a scholarly journal that will support innovation and growth of our knowledge base.

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Goals

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Philosophy

This journal will provide a peer-reviewed format for the publication of scholarly articles in the field of applied instructional design. The journal recognizes the role of the practitioner in the work environment and realizes that outside constraints may limit the data collection and analysis process in applied settings. The limitations of real-world instructional design of the practitioner can still provide valuable knowledge for the field.

Sponsoring Organization

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About AECT

The Association for Educational Communications and Technology (AECT) is a professional association of instructional designers, educators and professionals who provide leadership and advise policy makers in order to sustain a continuous effort to enrich teaching and learning. Seizing opportunities to raise awareness and leverage technology, our members may be found around the world in colleges and universities, in the Armed Forces and industry, in museums, libraries, and hospitals, and in the many places where educational change is underway. Our research and scholarly activity contribute to the knowledge base in the field of Learning. We are on the cutting edge of new developments and innovations in research and application.

AECT is the premier organization for those actively involved in the design of instruction and a systematic approach to learning. We provide an international forum for the exchange and dissemination of ideas for our members and for target audiences. We are the national and international voice for improvement of instruction and the most recognized association of information concerning a wide range of instructional and educational technology. We have 24 state and six International Affiliates all passionate about finding better ways to help people learn.

Since 1923, AECT has been the professional home for this field of interest and has continuously maintained a central position in the field, promoting high standards, in both scholarship and practice with nine Divisions and a Graduate Student Assembly that

represent the breadth and depth of the field. Other journals sponsored by AECT include *Educational Technology Research and Development* and *TechTrends*.

The Journal of Applied Instructional Design (JAID) is a refereed online journal designed for the publication of scholarly articles in the field of applied Instructional Design. The purpose of JAID is to provide the reflective ID scholar-practitioners and researchers a means for publishing articles on the nature and practice of ID that will support the innovation and growth of our knowledge base. The journal is for practitioners, instructors, students, and researchers of instructional design.

Understanding Instructional Design Collaboration

McDonald, J. K.

The papers in this special issue are part of an important conversation. Contemporary instructional design is a collaborative enterprise, and especially with the growth in the technologies available for learning, instructional designers cannot complete high-quality designs on their own (Gibbons, 2013). Although team members, stakeholders, and subject matter experts all provide input into both the form and quality of instructional designs, research literature predominantly credits the efforts of designers as being the primary influence, if not the deciding factor, of whatever learning or project outcomes are achieved. While the collaborative nature of the field is frequently acknowledged, research tends to treat others involved as secondary, sometimes little more than ancillary appendages to what instructional designers are doing (cf. Chen & Carliner, 2021). Thus, the articles in this special issue represent an advancement in our discourse as a field, because they foreground the role of collaboration in designing great instruction, while also exploring ways that such collaborations can be of higher quality.

Research was sought for this special issue that would address topics related to (a) aspects of the collaborative relationships involved in instructional design, (b) a broadened viewpoint on how to carry out effective collaborations, (c) illustrations of both effective and ineffective collaborative practices, (d) reports of the points of view held by collaborators in the design process, or (e) research that highlighted the complexities that can accompany meaningful collaboration. Collectively and individually, I believe the contributors to this issue have succeeded in these aims.

The issue begins with Lee et al., who report a case study focused on how to take advantage of what differing parties in an educational project bring to the table during the practice of co-design. Next, Gronseth et al. report a design case of the collaborations involved in designing an IDT internship program. Continuing, Stefaniak and Gilstrap review how instructional designer-faculty collaborations reflect the practices of coaching, along with how designers can better apply coaching principles in their collaborative work. McNeil et al. also offer a design case focusing on an industry-academic partnership in healthcare. Wehr et al. provide

insights into collaborations among the instructional design community itself, specifically focused on the important design justice movement. Carliner and Chen follow, and address an important issue: what, exactly, do we mean when we talk about instructional designer collaborations? And if we understand collaboration, does that affect whether we consider instructional design a collaborative enterprise? Wehr's paper then offers a detailed case study of co-design and participatory research practices in an instructional design context. Following her work, Strang provides a look into practical techniques that can be used to encourage meaningful collaborations between designers and university faculty. Next, Piña and Muller offer their insights into the important, but often neglected, issue of assessing the effectiveness of instructional design teams. Bevins and Howard studied the collaborative discourse in instructional design, and report here their analysis of what discourse patterns reveal about design relationships. Dolowitz and Collier report another co-design case study, theirs focused on collaborative instructional design practice between the Association for Educational Communications and Technology, and the North Atlantic Treaty Organization. Finally, Allman and Leary conclude the issue with an article focused on using the practices of self-study to assess the nature and effectiveness of collaborative design relationships.

These articles offer important advancements in the field's understanding of its central practices of collaboration. Researchers and practitioners alike can implement, remix, or extend their findings in a variety of contexts to improve the practice and study of collaborative design in educational settings.

References

Chen, Y., & Carliner, S. (2021). A special SME: An integrative literature review of the relationship between instructional designers and faculty in the design of online courses for higher education. *Performance Improvement Quarterly, 33*(4), 471–495. https://doi.org/10.1002/piq.21339

Gibbons, A. S. (2013). *An architectural approach to instructional design*. Routledge.

Negotiating Inherent Asymmetries of Co-Design: A Case of Integrative Elementary Mathematics and Computer Science Instruction

Lee, V.R. , Robillard, S. , Recker, M. , Clarke-Midura, J. , & Shumway, J.

Co-Design
Collaborative Design
Computer Science Education
Computer Science Integration
Elementary School
Research-Practice Partnerships

Collaborative design, or "co-design", is a term that has gained popularity in educational research and design communities, including those working with K-12 educators. While more groups are identifying with and pursuing co-design, much remains to be understood about how to structure the work within given different constraints, circumstances, and resources available to different parties. We propose understanding co-design as having inherent asymmetries and that structuring co-design work patterns involves negotiation of those

asymmetries. Through a case of an elementary computer science and math integration research-practice partnership, we share ways that those asymmetries are both intentionally softened and leveraged at different times.

Introduction

Collaborative design, or "Co-design," is a term that is being enthusiastically embraced in educational research communities, as it signifies a commitment to pursue educational improvement in ways that bridge persistent gulfs between design-oriented researchers and K-12 educators (Penuel et al., 2020). It intentionally involves a mixing of people with very different roles in education (e.g., researchers, developers, and teachers) working together to design educational solutions (Roschelle et al., 2006). By having more direct engagements and collaboration from the start, the hope is that co-design mitigates inequities so that all parties benefit from a design arrangement. For instance, the real-world time and resource constraints faced by different educators would be factored into the design at the beginning so that what works effectively in one learning setting is also designed to work well in a setting with a very different set of resources. Moreover, researchers will gain new knowledge for academic communities, developers will have a viable and desirable product for distribution, and educators will have useful and usable materials to positively impact their students.

Given that the goal is for co-design to benefit all parties involved, it may seem at first glance that co-design would be best implemented as a joint, synchronous endeavor from start to finish. Doing so could promote equal ownership and contribution to the work. However, those who are doing and reporting on educational co-design work are keenly aware that educational co-design is challenging work and more complicated than that (Dodero et al., 2014). Challenges to and strategies for productive co-design are still being actively identified and added to the research, design, and practitioner literature (e.g., Matuk et al., 2016; Penuel et al., 2007; Severance et al., 2016). This article contributes to that emerging body of work.

The main arc of this article's argument is that educational co-design often has inherent asymmetries distributed among the collaborating members of a co-design team. These asymmetries may include differentials in power and influence, availability and access to resources during the design process (including time), and familiarity with specific bodies of prior knowledge. One assertion is that when starting from the position of co-design as involving inherent asymmetries, the organization and conduct of co-design work becomes a negotiation of work processes given those asymmetries. Sometimes those differentials are kept intact and leveraged, and sometimes they are deliberately softened. As we will illustrate with this case, both approaches can be used effectively to produce a product and have legitimate and distinct contributions from all.

Literature Review

Co-Design

Co-design is a type of 'participatory' approach to curriculum design rooted in an educational design research tradition (Couso, 2016). One of the earliest mentions of "co-design" in the educational design literature comes from Roschelle et al. (2006):

> *We define co-design to be a highly-facilitated, team-based process in which teachers, researchers, and developers work together in defined roles to design an educational innovation, realize the design in one or more prototypes, and evaluate each prototype's significance for addressing a concrete educational need (p. 606).*

In describing the motivation for articulating co-design, Roschelle et al. alluded to the influence of preceding design perspectives such as user-centered (Norman & Draper, 1986), learner-centered (Soloway et al., 1994), and participatory design (Couso, 2016). Co-design now appears in several design-oriented research-practice partnerships–which are frequently abbreviated as "RPPs" (Coburn & Penuel, 2016)–whereby researchers and practitioners examine and work together to gain a better understanding of and devise possible solutions to persistent problems of practice. It is important to note that not all RPPs are design-focused, and even those that are oriented toward design may use different approaches than co-design (e.g., design-based implementation research; Fishman et al., 2013; Penuel et al., 2011). Moreover, not all co-design engagements unfold in the context of RPPs.

The co-design case discussed here, however, takes place within an RPP and reflects several of the challenges that are now appearing in the literature. For example, Farrell et al. (2023) discussed a study of multiple RPPs where equity was conceived and practiced in different ways that may have very different meanings to stakeholders. One distinction is between equity-in-mission – the focus on bringing about more equitable outcomes for learners – and equity-in-process – the focus on how the work within the RPP is coordinated and organized to strive toward equity in participation in the partnership work. While our examinations of the former appear in Robillard et al. (2023), the focus of this paper is on equity within the partnership work.

A typical co-design collaboration involves teachers and researchers, although different stakeholders may be involved including school district personnel, community members, or students. Gatherings are ideally more than a single meeting and instead are repeated and distributed over an extended period of time. However, there are no hard and fast rules for how long a co-design collaboration must last or be distributed. As a design endeavor, co-design does imply that some product for use in a learning setting will be a major end goal, such as new software tools, classroom routines, or curricula.

Inherent Asymmetries in Co-Design

Because educational co-design, specifically in an RPP, involves collaboration across members who operate primarily in research and practice organizations respectively, there are inherent differences in participants' perspectives and experiences. These differences

exist along numerous dimensions, observed in early writings on the “work circle” antecedent of co-design. Reiser et al.’s (2000) analysis of work circle interactions explicitly called out tensions that emerged when classroom teachers and university researchers worked on curriculum creation together. These tensions include different opinions on how much time to spend on fine-tuning all the details in a lesson plan and how scalable the resulting materials need to be.

Others have noted further differences with respect to how research and practice partners are accountable to different pressures. Penuel has described how different infrastructures underlie teachers' day-to-day work that may not align with what a codesign partnership is trying to accomplish (e.g., developing a curriculum for ambitious new learning goals). For instance, Penuel (2019) described science curriculum co-design work in an RPP where the teachers were subject to evaluative observations that did not recognize the complex teaching work that they were enacting through the newly designed curriculum. New infrastructuring work–in the form of new rubric and tool creation to crosswalk between existing evaluation protocols and the new practices–was necessary.

Farrell et al. (2023) offer institutional logics as one explanation for why these differences exist. Institutional logics are the “‘belief systems and associated practices’ that exist within a particular field, creating meaning systems for organizations, partnerships, and individual members.” (p. 3). For instance, university-based academic researchers are often driven by institutional logics that value lengthy deliberations, specialized views on what constitutes sufficient evidence, and valuing theory and the building of generalizable knowledge for the purpose of generating academic publications. As such, researchers are often working on highly specialized topics and advancing knowledge on those topics in ways that are very time and resource-intensive. However, there can be quite different institutional logics for K-12 participants that collaborate with researchers. Under intense time pressure and with many competing responsibilities, expediency in decision-making may be a key value that may conflict with the researchers’ orientation towards the work. A researcher may wonder what works for different populations of students located across a country whereas a teacher may wonder what works for the specific students that are sitting in the same room with them. Neither the researcher nor practitioner perspective is more advantageous. Rather, they are tuned to work conditions and norms for professional communities.

That these differences exist is likely familiar to those who have conducted intensive research-practice collaborative work, such as co-design. However, one of our assertions is that these differences exist because of inherent asymmetries in resources and social positioning across members of a co-design team. Since researchers have different work demands than classroom teachers, there is a major difference in available time to do ‘prep’ work. On the other hand, because teachers are around a diverse set of students every day, their attunement to what is appealing and accessible for youth is likely more robust than those of university researchers.

These asymmetries can create power differentials because one party has access to resources or information that the other would like to have as well. Furthermore, other forces may be at work that widen power differentials. Varying degrees of formal training can lead to differences in who is seen as subject authority. In many respects, these differences set the backdrop and are preconditions for educational co-design. However, explicit

acknowledgment of these differences can be used to organize partnerships in ways to strategically negotiate these asymmetries. In some situations, efforts will be made to flatten the asymmetries. In others, they will be intentionally leveraged.

Research and Design Context

The design case for this article comes from a research-practice partnership (RPP) that seeks to support and co-develop elementary school computer science (CS) instruction that involves paraprofessional educators (whose position title in the school district is "computer lab specialists") and classroom teachers in a rural-serving U.S. school district.[1] A key problem of practice addressed in this RPP is that very few elementary school teachers have backgrounds in or are comfortable with teaching CS. The computer lab specialists were newly being asked to provide CS instruction. The strategy being pursued by this RPP was to identify and highlight CS concepts in the mathematics curriculum and then structure the computer lab lessons as activities for exploring the related mathematical ideas through a computational medium (e.g., Scratch).

This RPP was born out of longstanding working relationships between a neighboring university and a school district. As computer science standards were adopted statewide, conversations had taken place over multiple years with different university researchers and school district personnel exploring potential K-12 computer science education research and design activities for use in schools. In 2020, as some initial explorations concluded, members of the university research team and the district central office pursued and were awarded funding from the National Science Foundation (Grants no. 2031382 and 2031404) to further develop one of the approaches that had been explored for computer science integration in elementary school. This was in addition to some state-level funding that the district independently received to use for computer science integration that had its own obligations. A key question guiding this team and for this article was: through what decisions is co-design configured, enacted, and adjusted considering real constraints to support equitable contributions and participation between research and practice partners and still produce useful lesson adaptations?

Methods and Data Sources

This RPP project was initiated in the first year of the COVID-19 pandemic (2020) when social distancing and remote work measures were in place. As such, the vast majority of collaboration activities were virtual, and video recordings served as the primary data source. Observations and artifacts are the primary focus of the current report.

Data included 49 recorded weekly meetings at the start of the RPP collaboration (each 1-1.5 hours) involving 7 university-affiliated researchers (Principal Investigators and Graduate Researchers) from two institutions and 2 school district-level Curriculum Leads. Those meetings involved much of the initial sense-making and planning for how to pursue co-design[2] with classroom teacher and paraprofessional educator involvement. In addition, 18 co-design meetings involving university researchers, school district coordinators, teachers,

and computer lab specialists were observed and recorded over a two-year period (2020-2022).

The research approach follows Severance et al (2014) in that it is ethnographic in nature; a project sub-team had been established to explicitly focus on documenting and studying the interactional dynamics of the RPP. To that end, at least one member of that sub-team was present and actively observing each meeting. Ethnographic research has historically involved field notes to document immersion in the activity or community that is being discussed (Emerson et al., 1995). However, given the timing of this work during the COVID-19 pandemic and that most co-design activities took place via online meetings, the decision was made to rely on video recordings for online meetings and combinations of recordings and observational notes for in-person co-design meetings. Best practices for rigorously capturing and reviewing video records were followed (Derry et al, 2010). Regular debrief discussions among that sub-team took place weekly to note key observations and to launch new side analyses of these moments (e.g., Robillard et al., 2023; Tan & Lee, 2023). Particular meeting transcripts were coded to identify significant topics and focus areas for project team discussion (Lee et al., 2022). Additionally, consistent with ethnographic practice, artifacts in the form of digital files produced in preparation for and immediately after all co-design meetings were reviewed and analyzed. The goal of this paper is not to provide a systematic summary of all the interactions, but rather to identify and report on some key activity structures that involve asymmetry negotiation that had been identified through reviewing and coding of co-design records.

Results

Consistent with Penuel et al. (2022), we observed that the work necessary for supporting co-design expands beyond a particular synchronous session. That is, there is a great deal of preparatory work that is done by team members and work that is also done outside of official co-design meetings, ranging from lesson materials revision to classroom teaching to analyzing information gathered from co-design sessions. The nature of the co-design work changed over time as project members shifted and interpersonal relationships developed.

Some constraints make some asymmetries more pronounced in the co-design relationships. For instance, this RPP and its co-design work were funded by a federal grant that was administered by a research agency and managed through the university partner and existed along with other state-level funding commitments that the district had made. Additionally, there are practical limits to time availability. Practice partners contend with typical school day schedules that only make certain afterschool times available to meet, and while compensated for their time, there are limits beyond any party's easy control that establish how often meetings can take place. Because of this, synchronous co-design meetings typically could occur no more than once a month. Eight of the 18 (44%) co-design meetings were during the school year, lasting one hour**. F**ive more school year sessions (28%) were more than one hour but less than 2 hours in length, and five sessions (28%) scheduled in the summers were two to three hours in length.

Reducing Asymmetries

While borne out of mutual interest and dialogue, some aspects of the project such as the finances and reporting accountabilities to funding agencies skewed influence toward the university partner. Also, that it was driven by district leaders and university members without involving specific teachers or computer lab specialists presented an asymmetry of influence on the co-design work. The teachers and lab specialists who were going to be involved in co-design were invited to join the work after it had been awarded funding, giving them a 'newcomer' status. Still, their participation was critically important and highly valued**,** and the team wanted to make that apparent in overt and subtle ways. Therefore, several steps were intentionally taken by the project team to 'design for co-design', as described below.

Conscientious selection of technical systems

An early concern among partners was that technologies that were favored by one partnering organization, but not the other, could create barriers to participation. The university had contracts with various vendors including Box.com, and the university's institutional review board (IRB) required that Box be used for security purposes with human subjects data. This led to the university defaulting to Box for its online storage infrastructure. However, from transcripts of online meetings, we noted how a district team member expressed that Box was not familiar to district personnel: *"I just think it needs to be easy for teachers -- Box is not intuitive by any means. And I think it, you know -- teachers are used to Google Drive."* From recorded meetings and knowledge shared by lead researchers, we knew the university team was bound by IRB rules to use Box. Yet over the course of an early co-design planning meeting, the researchers opted to maintain both Box and Google-based volumes for the project, with Google Drive used exclusively for co-design so that district partners would not feel like they were encumbered with needing to learn to use 'the university's preferred tools'. While this is one decision, there were several others. For instance, in other project meeting transcripts, the project ultimately decided to create a design group email list through Google Groups rather than a university listserv system so administrative control and email names did not have the university's address in them, further detaching those aspects of co-design communications from the university's tools. Elsewhere in early recorded co-design meetings, conscientious technical systems selection extended to questions about online calendaring systems for invitations and establishing dates and times and even which organization's Zoom accounts to use as those could represent influence in the partnership with one entity playing the persistent 'host' and having their system preferences dominate.

Flexibility in language use

Another instantiation of an asymmetry in the partnership is regarding what language to use when referencing the work. While education researchers are currently enthusiastic about RPPs, it is unclear how widely known the term is among practitioners and how enthusiastically it is endorsed. To illustrate, district team member S, who had been part of writing the grant referred to the entire endeavor in a meeting as: "You know the design, you know the practice design practice partnership". While we were confident this person valued and enthusiastically supported the partnership, the RPP term itself was not one that seemed of great importance to S. The decision was made during a recorded co-design planning meeting in the team that while "research-practice partnership" would be mentioned, there would be no expectations for co-design team members to have familiarity with that as a term nor need to actively use it thus demonstrating that there are different language

communities coming together where terms are bestowed different status. Forcing or policing these could inadvertently signal power or influence on the partnership and in designing the co-design, decisions were made to recognize and avoid giving those signals.

This question of terminology also even extended to the terms ‘design’ and ‘co-design’. Educational researchers and designers value ‘design’ as an idea and treat it as a highly agentic and generative activity. However, a district partner commented that for teachers, “design” implied a lot of time and effort. For example, many teachers do not think of their work leading up to classroom instruction as “designing” their lessons but rather “planning” their lessons. This was illustrated by the following comment from the video record of an early meeting about what to call the team of (what we refer to in this article as) curriculum co-designers.

> *District Member B: I do think that, from the teacher’s perspective -- going to the word adapting makes the challenge less overwhelming, because when you’re talking to a teacher about designing units–that’s a long-term time-intensive process–but adapting I think is a better word for that.*

As we, the authors of this paper, are participants in and are through this article addressing a community where “design” is discussed (in the context of co-design), we comfortably use the term here. However, the RPP team that was designing the co-design elected to leave this determination to the co-design team. “Design” was offered as a descriptor, but the teachers and specialists viewed it as “integration”. This became part of the collective identity that emerged, and that group even gave themselves the name “Code Math integration group” which did not use the “design” term and even designed a logo for that name.

Starting with outside examples

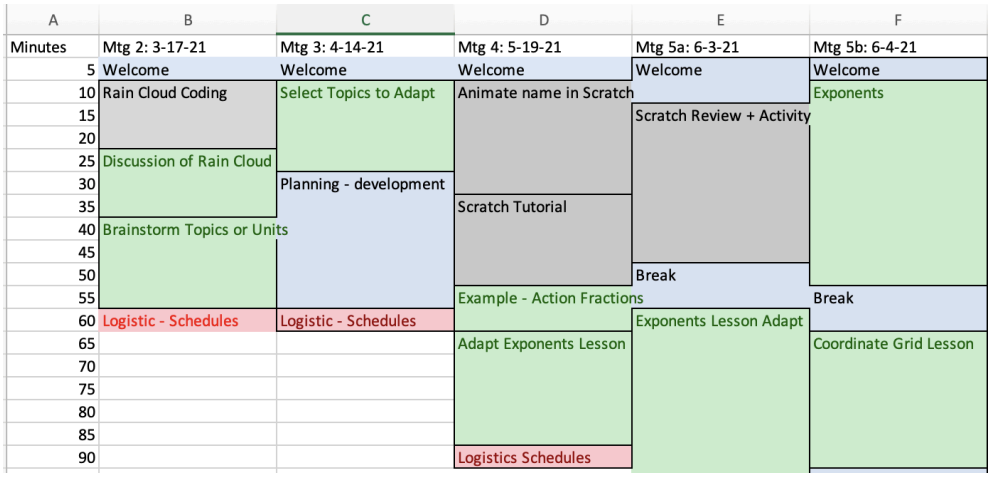
A common theme across the above examples is to reduce the sense that ownership was asymmetric at the onset of the co-design relationship. By seeking resources and language that felt equally accessible to all, we could diminish the sense that the university partners or the district central office were the main owners. Upon sequentially mapping the scheduled activities for all co-design meetings (see Figure 1), we observed that the decision was made to begin three of the first five co-design meetings with teachers and computer lab specialists by jointly viewing and trying examples of integrated math and computer science instruction that existed outside of the partnership. These were presented as everyone trying and discussing some existing learning activities together during synchronous meeting time and reacting to them.

For example, one activity was “Rain Cloud” coding task (Germia & Panorkou, 2020), which involved manipulating code in Scratch for a ”rain cloud”-shaped sprite to move to different locations. University researcher S introduced it in a co-design meeting as an activity where “what we’ll do is we’ll just kind of go through like what the lesson says–so Task A is just to see this, you know, to understand the sprite and sort of the space.” This was intended to put all co-design team members on equal footing in that no one had ownership or history with the existing lessons. By also working through other existing examples that introduced computer science ideas, the team could simultaneously address another asymmetry in the

relationship: uneven prior content knowledge related to CS, as instantiated in the Scratch programming environment.

Figure 1

Tabular summary of several co-design meetings in 5-minute increments, with three meetings using pre-made examples that the co-design team explored together – the Rain Cloud activity (Mtg 2), using Scratch (Mtg 4 and 5a), and Action Fractions (Mtg 4).



Once the group had worked through the task, it immediately led to conversations about how activities like this would work in the classroom or computer lab. In the recorded session after having time to explore the Rain Cloud activity, Computer Lab Specialist E offered as a reaction “So, but if I was to tell them to place a sprite–the Rain Cloud in a certain spot–they could do that with a little prompting…I’m teaching the fifth graders and especially the fourth graders this year different–meaning I’m really focusing on the X and Y coordinates and what they do”. Her comment about focusing on X and Y coordinates then created space for open discussion about what challenges she anticipated students having with coordinate systems, to which the other district educators could contribute, and then some group synthesis for how new co-created instructional materials could address them.

Leveraging Asymmetries

In the interest of promoting agency and investment, it was important especially early in the co-design relationship to reduce asymmetries. However, because members of the co-design team brought different resources to the larger project by virtue of their jobs and institutional affiliation, it also makes sense to take advantage of those asymmetries. The contention here is that in co-design, while equitable processes and contributions from all persist as goals, their realization may come in the form of uneven distribution of specific activities to specifically leverage asymmetries.

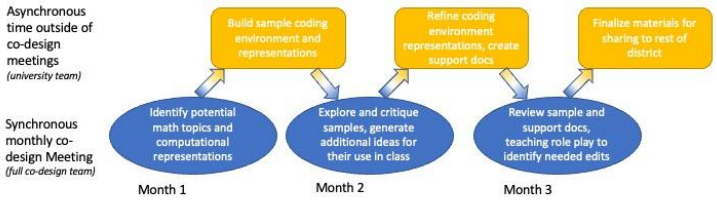
Alternating synchronous and asynchronous work

One of the most pronounced asymmetries in the co-design work was in the available time to do preparatory work outside of scheduled synchronous co-design meetings. Preparing

curricular materials, even when they are characterized as adaptations to existing materials, is a time-consuming process that can involve wrangling with software tools, cross-referencing information sources, and writing lessons. Classroom teachers had many subjects to teach and numerous responsibilities that led many to work well beyond the regular workday hours. Computer lab specialists needed to provide instruction for the entire school as well as a range of other responsibilities. While the invitation to co-construct new support materials was open, the pattern that emerged was a continual back-and-forth of asynchronous development that extended across multiple co-design meetings (Figure 2).

Figure 2

A depiction of the alternating synchronous and asynchronous development process to accommodate limited meeting times. At the end of this cycle, the materials and lesson adaptations were deployed and then subsequently evaluated.



The workflow operated in the following way and had been enacted across design meetings covering the co-design of two integrated math and CS units related to exponents and related to Cartesian coordinates. At the start of a cycle where some new materials and adaptations were to be created, a portion of a synchronous design meeting involved open solicitation of important CS concepts and challenging mathematics topics (see Figure 1, Mtg 3), based on teacher and computer lab specialist observations of students. For example, exponentiation as a form of repeated multiplication rather than repeated addition was an area where co-design teachers observed students having a narrow view of the concept (e.g., a conception aligned with a base-10-only view promoted in the textbook materials). When this was raised in the video recording, questions were asked by the group about the kinds of narrow conceptions and errors that students made and what teachers could see as helpful solutions. In this case, it was made visible that the operations and magnitude of repeated addition and repeated multiplication differed substantially and could easily be demonstrated through using visualizations in a coding environment. With that information, members of the university team prepared sample starter materials, in the form of a Scratch program, that could show this through cloning the same sprite and visualizing the different additive and multiplicative growth with “repeat” loops (see Robillard et al., 2023 for a detailed interaction analysis of this structure).

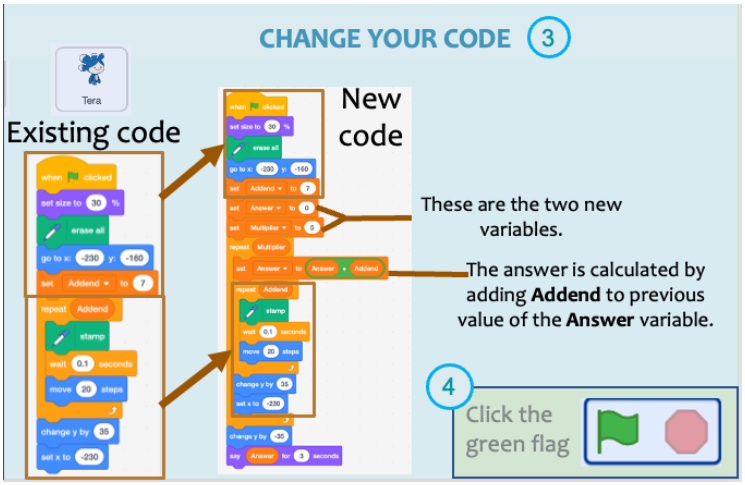
At a later co-design meeting, the materials were demonstrated as one possible resource, which then received feedback and discussion from the entire co-design team. The university-based team members then produced a more developed set of materials. In essence, the synchronous co-design meeting time became occasions for generating ideas, reacting to examples, and suggesting supports and activities. Outside of those meetings, one group

that had time available for materials creation and edits took care of that so the focus during synchronous time could be more about trials and discussion. This cycle requires multiple months of co-design meetings given that only one meeting took place per month.

The alternating synchronous and asynchronous development cycle described above also has the advantage of accommodating asymmetries in computer science knowledge between co-design team members. Coding and debugging are things that can be delegated to university partners who are more comfortable with CS, but the challenge is to make sure that code is prepared in ways that are comprehensible to the practice partners in the co-design team who will teach those materials. This required careful annotation in support materials and intensive discussion about how the code worked and what could be made more comprehensible for teaching purposes and still support educator learning of computer science (Figure 3).

Figure 3

Example annotations to support code interpretation for use in classroom and computer lab teaching, refined after testing in teaching role plays.



Teaching role plays

Teaching role plays, or rehearsals, is another important part of our synchronous co-design experience and leverages two existing asymmetries. One is that the classroom educators are the experienced facilitators of classroom instruction and will have the most insight into what is useful. The other is the different teaching roles and unfamiliarity with one another's teaching context and content that can be leveraged through teacher role play with one another. Specifically, computer lab specialists can role play the teaching they are responsible for with the classroom teachers role playing as students. The classroom teachers can role play with the computer lab specialist. This is an opportunity to put on a 'student hat' to imagine what the experience is like for students (Biddy et al., 2021).

This role play is abbreviated but is an opportunity to find errors or needed improvements in the lesson materials and adaptations. Just as testing with actual users at various stages of the development process is critical to design, teacher role play is an important test scenario

prior to use with actual students. This extends and concludes the alternating synchronous and asynchronous development process described above and identifies final modifications that need to be made before the lessons are taught. Through the role plays, a mix of concerns have surfaced by the classroom educators including typographical errors, the need for additional slides or examples to use during instruction, and conversations about cultural sensitivity and inclusivity (Robillard et al., 2023 provides a transcript and in-depth interaction analysis that came about during a role-play).

These role plays also serve a purpose as new co-design team members join. We have invited classroom co-designers to lead the role plays of some existing units for the entire group when new co-design team members join at the start of a new academic year. For instance, in the 14th co-design meeting which took place in August before the start of the second school year for the project, the video record has the collaborating classroom teachers leading the designed instruction for the new teachers who had newly joined the project for that cycle. The benefit of this approach was that it positioned co-design team teachers and computer lab specialists as veterans who could model the designs they helped to create. It also demonstrated how the new instruction can be led, reduces concerns about what is expected of teachers, as well as helps identify any further fixes or adjustments that are needed.

Discussion

The described decisions above that have been identified through a review of co-design team meeting video recordings and records and stabilized into the team's co-design routines demonstrate some ways in which inherent asymmetries can be navigated, especially in light of real constraints on time and resources in educational co-design. This report, while brief, shares how co-design was enacted and negotiated given real constraints in service of making more equitable contributions and participation possible between research and practice partners. Looking across the examples that had been identified from the co-design video records and other co-design meeting artifacts, we argue that in this case, co-design did not need to happen strictly during synchronous designated meetings, which were limited in time and number. Co-design structuring for equitable participation also took place explicitly when discussed by team members as part of preparatory work related to how the co-design relationship will operate. This was done to reduce some of the asymmetries so as to support entry and participation in actively reflecting on and imagining new directions for instruction.

While creating access and supporting affiliation is important, we also saw some decisions that relied on some differences in knowledge and circumstances and allowed the work to move efficiently (Figure 2). This configuration still preserved the synchronous time for joint reflection and appraisal that ultimately shapes what products get made and refined (see Figure 1). Portions of the materials creation and refinement take place outside of synchronous time, but that occurs in a way to produce a stimulus to which the entire co-design team can respond. It is not intended to be final-form until multiple back-and-forth cycles occur, and it is rooted in jointly identified content targets. This configuration ultimately reflects that educational co-design work has intensive collaborative activity during synchronous sessions but is also distributed over time and across actors outside of the synchronous sessions.

Recognizing this is important to update our sense of what is involved in educational co-design. The literature on co-design activity structures is beginning to surface the idea that a co-design team working in lockstep fashion through all stages of design is only one of many possible co-design models. There are additional valuable models of co-design that involve constrained tasks, idea generation, asynchronous work, and multiple cycles of testing. A key point of this article is that those are indeed educational co-design activities and may even be desirable given some of the inherent asymmetries that exist across co-design collaborators. Additionally, the collaboration approach described here that negotiates and navigates these asymmetries has successfully yielded the development of new materials, and lesson adaptations, and given rise to new learnings for researchers, classroom teachers, and computer lab specialists (Goldman et al., 2022).

However, these outcomes are ones that we can only assert are tied to the constraints and circumstances of this project. If co-design meetings could have been more frequent or individually longer in duration, then the decisions made here may not have been necessary. Indeed, it is an open question about how co-design teams operate under a range of circumstances for different aims. The decisions made here that worked for this case might differ for educational co-design situations with educators working outside of school settings or with more intensive software design requirements. It may also have been very different in situations where other asymmetries are more prominent, such as those that involve issues of historical marginalization, or when they are more flat, such as when the content knowledge of the domain is more robust across all co-design partners. However, the contribution of this work is as its own design case (Boling, 2010) to illustrate how and when key decisions were made in the work of instructional design and also a contribution to our understanding of instructional design processes as they actually unfold over time (Edelson, 2002). This report adds to the efforts that are beginning to appear elsewhere (e.g., Matuk et al., 2016; Severance et al., 2016) that are helping us to gain a better understanding of effective educational co-design configurations and the types of decisions that must be made in service of more equitable participation in light of real constraints and limitations. In the future, more cases would be appropriate as well as more longitudinal research on how co-design relationships change over time, both when participants in the co-design process stay the same and when participants change, such as due to staff turnover or larger policy changes at an educational partner institution.

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References

Biddy, Q., Gendreau Chakarov, A., Bush, J., Hennessy Elliott, C., Jacobs, J., Recker, M., Sumner, T., & Penuel, W. (2021). A professional development model to integrate computational thinking into middle school science through codesigned storylines. *Contemporary Issues in Technology and Teacher Education, 21*(1).

Boling, E. (2010). The Need for Design Cases: Disseminating Design Knowledge. *International Journal of Designs for Learning, 1*(1).

Coburn, C. E., & Penuel, W. R. (2016). Research–Practice Partnerships in Education. Educational Researcher, 45(1), 48-54. https://doi.org/10.3102/0013189X16631750

Couso, D. (2016). Participatory Approaches to Curriculum Design From a Design Research Perspective. In D. Psillos & P. Kariotoglou (Eds.), *Iterative Design of Teaching-Learning Sequences: Introducing the Science of Materials in European Schools* (pp. 47-71). Springer Netherlands.

Derry, S. J., Pea, R. D., Barron, B., Engle, R. A., Erickson, F., Goldman, R., . . . Sherin, B. (2010). Conducting video research in the learning sciences: Guidance on selection, analysis, technology, and ethics. *Journal of the learning sciences, 19*(1), 3-53.

Dodero, G., Gennari, R., Melonio, A., & Torello, S. (2014). Gamified co-design with cooperative learning. Paper presented at the CHI '14 Extended Abstracts on Human Factors in Computing Systems, Toronto, Ontario, Canada. https://doi.org/10.1145/2559206.2578870

Edelson, D. C. (2002). Design research: What we learn when we engage in design. *Journal of the Learning Sciences, 11*(1), 105-121.

Emerson, R. M., Fretz, R. I., & Shaw, L. L. (1995). *Writing ethnographic fieldnotes*. University of Chicago Press.

Farrell, C. C., Singleton, C., Stamatis, K., Riedy, R., Arce-Trigatti, P., & Penuel, W. R. (2023). Conceptions and Practices of Equity in Research-Practice Partnerships. *Educational Policy, 37*(1), 200-224. https://doi.org/10.1177/08959048221131566

Fishman, B. J., Penuel, W. R., Allen, A.-R., & Cheng, B. H. (Eds.). (2013). Design-based implementation research: Theories, methods, and exemplars. *National Society for the Study of Education Yearbook*. Teachers College Press.

Germia, E., & Panorkou, N. (2020). Using Scratch Programming to Explore Coordinates. *Mathematics Teacher: Learning and Teaching PK-12 MTLT, 113*(4), 293-300. https://doi.org/10.5951/mtlt.2018.0032

Goldman, S. R., Hmelo-Silver, C. E., & Kyza, E. A. (2022). Collaborative Design as a Context for Teacher and Researcher Learning: Introduction to the Special Issue. *Cognition and Instruction, 40*(1), 1-6. https://doi.org/10.1080/07370008.2021.2010215

Henrick, E. C., Cobb, P., Penuel, W. R., Jackson, K., & Clark, T. (2017). Assessing Research-Practice Partnerships: Five Dimensions of Effectiveness. Retrieved from New York, NY: **???**

Lee, V. R., Clarke-Midura, J., Shumway, J., & Recker, M. (2022). "Design for Co-Design" in a Computer Science Curriculum Research-Practice Partnership. In C. Chinn, E. Tan, C. Chan, & Y. Kali (Eds.), Proceedings of the 16th International Conference of the Learning Sciences - ICLS 2022 (pp. 1049-1052). ISLS.

Matuk, C., Gerard, L., Lim-Breitbart, J., & Linn, M. (2016). Gathering Requirements for Teacher Tools: Strategies for Empowering Teachers Through Co-Design. *Journal of Science Teacher Education, 27*(1), 79-110. https://doi.org/10.1007/s10972-016-9459-2

Norman, D., & Draper, S. W. (1986). User centered system design: New perspectives on human-computer interaction. Lawrence Erlbaum Associates.

Penuel, W. R. (2019). Infrastructuring as a Practice of Design-Based Research for Supporting and Studying Equitable Implementation and Sustainability of Innovations. *Journal of the learning sciences, 28*(4-5), 659-677. https://doi.org/10.1080/10508406.2018.1552151

Penuel, W. R., Allen, A.-R., Henson, K., Campanella, M., Patton, R., Rademaker, K., . . . Zivic, A. (2022). Learning Practical Design Knowledge through Co-Designing Storyline Science Curriculum Units. *Cognition and Instruction, 40*(1), 148-170. https://doi.org/10.1080/07370008.2021.2010207

Penuel, W. R., Riedy, R., Barber, M. S., Peurach, D. J., LeBouef, W. A., & Clark, T. (2020). Principles of collaborative education research with stakeholders: Toward requirements for a new research and development infrastructure. *Review of Educational Research, 90*(5), 627-674.

Penuel, W. R., Roschelle, J., & Shechtman, N. (2007). Designing formative assessment software with teachers: An analysis of the co-design process. *Research and Practice in Technology Enhanced Learning, 2*(01), 51-74.

Penuel, W. R., Fishman, B. J., Cheng, B. H., & Sabelli, N. (2011). Organizing research and development at the intersection of learning, implementation, and design. *Educational Researcher, 40*(7), 331-337.

Reiser, B. J., Spillane, J. P., Steinmuller, F., Sorsa, D., Carney, K., & Kyza, E. (2000). Investigating the mutual adaptation process in teachers' design of technology-infused

curricula. Paper presented at the Fourth international conference of the learning sciences.

Robillard, S., Lee, V. R., Clarke-Midura, J., & Shumway, J. (2023). When is an Owl More than an Owl? An Interaction Analysis of a Computer Science Co-design Conversation on Cultural Relevance. In P. Blikstein, J. van Aalst, R. Kizito, & K. Brennan (Eds.), *Proceedings of the 17th International Conference of the Learning Sciences - ICLS 2023*. ISLS.

Roschelle, J., Penuel, W., & Shechtman, N. (2006). Co-design of innovations with teachers: Definition and dynamics. In S. A. Barab, K. E. Hay, & D. T. Hickey (Eds.), *Proceedings of The Seventh International Conference of the Learning Sciences* (Vol. 2, pp. 606-612). Lawrence Erlbaum Associates.

Severance, S., Leary, H., & Johnson, R. (2014). Tensions in a Multi-Tiered Research-Practice Partnership. In Polman, J. L., Kyza, E. A., O'Neill, D. K., Tabak, I., Penuel, W. R., Jurow, A. S., O'Connor, K., Lee, T., D'Amico, L. (Eds.). *Learning and Becoming in Practice: The International Conference of the Learning Sciences (ICLS) 2014,* Volume 2, (pp. 1171-1178). International Society of the Learning Sciences.

Severance, S., Penuel, W. R., Sumner, T., & Leary, H. (2016). Organizing for Teacher Agency in Curricular Co-Design. *Journal of the learning sciences, 25*(4), 531-564. https://doi.org/10.1080/10508406.2016.1207541

Soloway, E., & Guzdial, M., & Hay, K.E. (1994). Learner-Centered Design: The Challenge for HCI In The 21st Century. *Interactions*, 1(2), 36-48. https://doi.org/10.1145/174809.174813

Tan, M., & Lee, V. R. (2023). An Exploration of Computational Text Analysis of Co-Design Discourse in a Research-Practice Partnership. Paper presented at the 2023 Annual Meeting of the American Educational Research Association, Chicago, IL.

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[1] The team name is slightly changed for this paper in the interest of de-identification of the practice partners.

[2] While co-design was not a term that was aggressively enforced in this collaboration, we do ultimately decide to use the term ‘co-design’ for this article as it is reflective of the discourse among researchers and others in the field who look to publications such as this one for ideas and guidance.

Bridging Silos: Collaborating to Create Authentic Learning Experiences for Future Instructional Designers

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AI in Education
Authentic Learning Experiences
Instructional Design
Internships
Self-efficacy
Transdisciplinary Collaborations

Authentic learning experiences such as internships can enhance employability and support the development of interpersonal skills. Arranging internships can be challenging for instructional design and technology (IDT) education programs, involving a need for collaboration with others across disciplinary areas to connect students with real-world instructional design needs and project ideas. This paper offers a design case of a partnership of investigators from multiple disciplines at a large, urban, public university in the southwestern United States that was leveraged to

create summer internships for IDT students. Interviews were conducted with participating students six months following the program. There were noted impacts of the internship on their identities as novice IDT professionals, with certain components of the internship structure more directly shaping their IDT skills for working on transdisciplinary team projects.

Introduction

Though instructional design and technology (IDT) professionals can have various roles and responsibilities, interpersonal skills, including communicating, collaborating, and interfacing with diverse stakeholders, are essential. Providing opportunities in IDT education for the development of these skills in *authentic* ways (referring to learning experiences that are realistic to how the skills will be used; Herrington et al., 2014) can foster the employability of future IDT professionals as they enter the field (Ornellas et al., 2019). Authentic learning environments, embodied through internships and client-based course projects can immerse students in IDT practices, and provide them with opportunities to interact with subject matter experts (SMEs), collaborate on team-based projects, and apply conceptual understandings (Lowell & Moore, 2020). Experience gained through internships can further serve as on-the-job training for new IDT professionals, as prior related experience is an often-stated expectation in IDT job postings (Nworie, 2022). Authentic learning opportunities can be challenging for IDT education programs to offer, as these experiences often require partnerships with organizations and individuals that connect students with real-world instructional design needs and project ideas. Programs also have to consider how students will be monitored and supported as they work on projects to maximize benefits and outcomes for all involved.

The purpose of this paper is to offer a design case of a partnership of investigators from multiple disciplines, referred to as "transdisciplinary," at a large, urban, public university in the southwestern United States. The partnership was leveraged to create summer internships (five to ten weeks in length) for IDT Master's level graduate students in 2022. Internship projects included the development of a virtual escape room on artificial intelligence/machine learning (AI/ML) concepts and applications to health literacy; the conversion of a face-to-face workshop on scientific data management principles for biomedical researchers to an online, on-demand format; and usability testing of a decision-making tool for distribution of food supplies during disasters. Interns were mentored through one-to-one virtual weekly sessions by an IDT faculty member, who then updated the transdisciplinary team regularly regarding the intern's progress. Interviews were conducted six months after the internship to explore the interns' perceptions of their experiences and the impacts of these experiences on their identities as developing IDT professionals.

Literature Review

Authentic learning and practice are central to students' academic experiences, especially as they enter a highly competitive job market that continues to change based on global, societal, and technological advances (Martínez-Argüelles, 2023). Constructivist pedagogy and technological considerations can inform the authenticity of hands-on learning experiences in this context (Ornellas et al., 2019). Authentic learning encourages the immersion of students in spaces, roles, and cognitive habits that connect learners with target content through strategies such as role-playing exercises, problem-based activities, internships, and case-based learning (Herrington et al., 2010). Related literature that will be briefly reviewed describes fundamental IDT skills, affordances of authentic learning experiences in general and internships in particular, and design cases in which such experiences have been brought to life through transdisciplinary collaborative efforts.

Instructional Design and Technology Skills

To identify and improve the learning performance of IDT students, the knowledge, skills, and abilities (KSA) framework establishes specific criteria concerning the creation, use, and management of IDT-related processes and resources (Martin & Ritzhaupt, 2021). Similarly, the Association for Educational Communications and Technology (AECT) has developed specific standards for IDTs that include the areas of:

1. Content Knowledge,
2. Content Pedagogy,
3. Learning Environments,
4. Professional Knowledge and Skills, and
5. Research (Martin & Ritzhaupt, 2021).

Developing competencies in content pedagogy, such as capabilities in designing project-based learning materials, can help early career IDT professionals to be able to incorporate instructional strategies that are authentic and student-centered in their designs (Mettas & Constantinou, 2007; Rubiah, 2020). Abilities in areas of "initiative and focus" and "leadership and ethical judgment" have also been prioritized by Ritzhaupt et al. (2018).

Authentic Learning Experiences for IDT Skill Development

The term *situated learning* (Collins & Duguid, 1989) is used to characterize the approach used to foster emerging IDT professionals' authentic learning experiences (Ornellas et al., 2019). Situated learning refers to "the notion of learning knowledge and skills in contexts that reflect how the knowledge will be useful in real life" (Collins, 1988, p. 2). Applying situated learning to instructional design and practice can take the form of a cognitive apprenticeship model (Collins, 1988), which is a structured approach to providing instrumental experiences for learner development of IDT skills *in situ* (Ornellas et al., 2019). This type of learning also supports academic-based social interactions with more

experienced IDT professionals who observe, guide, assess, and provide feedback to apprentices to equip them with skills needed for the workplace (Herrington et al., 2010).

To provide students with authentic learning experiences, there is a need for accurate assessments that demonstrate students' levels of understanding and skill. In contrast to traditional methods of assessment (e.g., essays, quizzes, examinations; Herrington, 2015), authentic assessments focus on the value of the learning process itself as the final product rather than prioritizing grades (Barber et al., 2015). Additionally, reflection is a crucial component of these experiences, as student reflection can lead to new understandings and transformative learning (Bester & Pretorius, 2022). Learning through reflection activities is further supported when students return to their experiences, attend to the feelings they experienced, and then re-evaluate the experiences (Boud et al., 1985).

Internships and practicums offer a means for IDT skill development in authentic settings. For instance, the Australian Qualifications Framework (AQF) for postgraduate certificates uses internships and practicums to engage students with applications of theoretical concepts from their fields of study (Heggart & Dickson-Deane, 2021). Project-based learning fits into an internship structure naturally and provides opportunities for leadership and communication skill development that can prepare learners to be workforce-ready (Hynie et al., 2011). Such authentic learning opportunities can arise through transdisciplinary collaborations between IDT education programs and partnering units through which students can experience a "fair balance between theory and application of ID principles" (DeVaughn & Stefaniak, 2020, p. 3318).

Experiential Learning and Self-Efficacy

Experiential learning through "doing" can be transformational as learners engage with ill-structured problems, devise and try out possible solutions in real life, work collaboratively with various partners, and reflect on their experiences (Perusso & Baaken, 2020). It is essential to highlight that in this context, teachers assume a more facilitative role rather than a direct instructional role (Hew & Knapczyk, 2007). Instructors can mentor and provide timely guidance through appropriate scaffolds that support students in navigating through complex tasks productively (Ge et al., 2005). For example, an instructor might use question prompts to "direct students' attention to important aspects of the problem, activat[e] their schema, elicit their explanations, and prompt them for self-monitoring and self-reflection" (Ge et al., 2005, p. 220).

Purposefully building in points of self-reflection can lead students to assess their past actions and plan for their next steps and goals (Perusso & Baaken, 2020). In the process, their self-efficacy regarding their capabilities for target skills and understandings is enhanced. While skills and knowledge are crucial for success, having self-efficacy, which is the belief in one's ability to achieve specific tasks and desired outcomes (Bandura, 1997), may be just as important for accomplishing tasks (Versland, 2015). Students' self-efficacy in learning through challenges of practice is influenced by how engaged they are in exerting effort and the performance achievement they encounter (Dunlap, 2005).

Transdisciplinary Collaborations

To meet students' learning needs and to allow for authentic learning experiences to take place, transdisciplinary collaborations are needed as faculty reevaluate conventional methods for course designs (Devies et al., 2022). In using the term *transdisciplinary* in this case, rather than similar terms of *interdisciplinary* or *multidisciplinary*, the participatory and integrated characteristics of the collaboration are emphasized. Thus, transdisciplinary collaborations bring investigators from different areas of expertise together to achieve shared goals in ways that span individual disciplinary boundaries.

When faculty members work together in developing curricula, a sense of “communal responsibility and ownership” (Briggs, 2007, p. 677) forms, where terms like “our students” and “our curriculum” replace terms like “my course” and “my department.” Further, this shared sense of ownership encourages faculty to allocate time in meetings to discuss curricular engagements and collaborations, communicate their progress, and solicit colleague comments (Briggs, 2007). Additionally, teamwork between curriculum developers and collaborators is crucial to facilitate effective communication regarding “development processes, timelines, and expectations to support the collaborative curriculum development process” (Devies et al., 2022, p. 108). The implementation of curriculum reform through transdisciplinary collaborations can equip faculty to “use strategies that involve external stakeholders during the design process” (Voogt, 2016, p. 127).

Method

Six months after the conclusion of the internship, the interns were invited to participate in interviews about their experiences in the program. The purpose of gathering data via interviews was to understand the interns’ perceptions about their roles within the collaborative internship structure and identify the mid-term impacts of the internship on their learning and career trajectories. The following research questions guided the development of the semi-structured interview protocol:

1. How do the IDT students perceive the transdisciplinary collaborations as part of the internship design?
2. In what ways has the internship impacted student learning of IDT concepts and technical skills?
3. How were the interns’ views on their IDT professional identities reframed through the internship?

The interview questions inquired about why the interns chose to participate in the internship, how their IDT understanding was shaped through the internship, their observations regarding the partnership between the IDT program area and the other discipline areas, how the internship experience impacted their graduate studies or professional work, aspects of the internship they found most valuable, how the internship design could be improved, and views on their career development going forward. Three co-authors reviewed and refined the questions to support instrument validity (Golafshani, 2003). The semi-structured interview protocol is provided in Appendix A.

Four interns participated in the interviews. At the time of the interviews, one of the participants had graduated from the IDT program, and the other three were still enrolled. One

faculty team member not involved in the direct supervision of the interns led the interviews, and an IDT doctoral student assisted with interview scheduling and note-taking. The interviews were conducted with individual participants via Microsoft Teams, and each was about 30 minutes long. The study was reviewed and approved by the first author's Institutional Review Board, and consent was obtained from all participants before data collection.

The interviews were recorded and transcribed. An initial round of open coding analysis (Gibbs, 2007) was conducted by the first and second authors in which they each read the individual interview transcripts, marked similar descriptive topics using keyword codes that were developed from the data, and began to make initial comparisons about observations noted across the transcripts. The authors reviewed each other's coding and then met to discuss and consolidate the keyword codes into an initial set of emerging themes.

The authors then engaged in a second round of analysis in which the transcripts were re-examined using Gee's (2011) Identities Building Tool, a discourse analysis technique that involves asking questions of the data to explore how speakers are using language to express their own identities and those of others:

> *For any communication, ask what socially recognizable identity or identities the speaker is trying to enact or to get others to recognize. Ask also how the speaker's language treats other people's identities, what sorts of identities the speaker recognizes for others in relationship to his or her own. Ask, too, how the speaker is positioning others, what identities the speaker is "inviting" them to take up. (p. 110)*

Gee's tool centers on identity in three aspects – identities of the speaker (i.e., self-identities), identities of others, and impacts of how the speaker perceives others' identities to the shaping of their identities. Based on the tool's guidance, the authors considered the role of identity in the context of the internship and constructed three sets of questions to ask of the interview data–

1. Intern's self-identity: What identity is the intern building for themselves? How does the intern use language to build these identities? What parts of their identities did the interns use when working? How do the intern's past identities shape their present identities in this internship, and what have they chosen to do afterward?
2. Identities of others: What identities is the intern building for others? How is the intern using language to build these identities?
3. Impacts of others' identities on the intern's self-identity: How do the roles that the intern perceives of others impact their own identity building? Are there any tensions or contradictions in how the intern attempts to build their own identities both through how they talk about themselves and through their contrasting of their identities with those they attribute to others?

The authors separately re-read through the transcripts and captured their observations and interpretations relating to the three sets of questions using comments in the documents. They reviewed each other's comments, revisited the drafted emerging themes from the first round of analysis, and refined the themes further to reflect the observations that surfaced

during the second round. Example excerpts were selected from each interview to illustrate theme dimensions.

Findings and Discussion

Revisiting the internship experiences through the interview dialog illuminated some key findings in four main theme areas–

1. Gaining practical authentic learning experiences
2. Valuing working in transdisciplinary collaborations
3. Struggling productively in the complexity of authentic projects
4. Supporting self-efficacy in instructional design and technology

In the interviews, the interns shared their reflections on aspects of their learning that they gained through the internship and have since found applicable to their professional work. The interns generally characterized themselves as novice IDT professionals and the internship was an opportunity to feel what it could be like working as an IDT professional. There were also other self-identities noted similarly across multiple interviewees, including continual learners, self-managing workers, resume-builders, mergers of prior professions with new IDT skills, solution-creators, and contributing members of a larger project team. There were also examples shared of how certain internship experiences and interactions with others impacted these self-identities. Gee offers insights into such observed changes in identities:

> *We humans actively create our core identity by the way we tell our stories of our lives—and what we have to say about who we are—to others and to ourselves. And yet this story and what we say about who we are, can change in different contexts and across time. (p. 106)*

The interns described examples of how their internship experiences contributed to their growth and confidence in their IDT capabilities, with certain components of the internship structure being prioritized as having more direct impacts on their IDT skill development and abilities for working in transdisciplinary team projects. Key findings within each theme area will be discussed in turn. Illustrative transcript excerpts are incorporated into this discussion, with interviewees referred to as P1, P2, P3, and P4.

Theme 1: Gaining Practical Authentic Learning Experiences

The first theme identified from the interview data was how the internship provided opportunities for authentic learning. Several students mentioned theoretical concepts that they had learned in their IDT coursework and how they then experienced the application of these concepts during the internship. For example, P1 saw applications of concepts and skills they had learned in their digital storytelling course, as they worked on creating and editing videos. In utilizing their knowledge for an authentic instructional design project, P1 began to consider expanded career opportunities in the instructional design field–

> *When I saw the internship for instructional design, I was excited to take part in it because I mean, it's one thing to do things in the theory, but then it's another thing to put into practice. So, I took the classes, I did the coursework, but there's only so much that the coursework can prepare us for the real world. And so, I saw this as an opportunity to work with another department potentially as an instructional designer intern and start to get that experience and see if maybe that's the right place for me. So, those were the motivations of career outlook and what it could potentially mean for me and the future steps that I take toward my career.*

As expressed in this excerpt from P1, the internship seemed to shape the intern's projections of their potential future identities in the IDT profession. This observation was similarly noted across all four interviews in which the internship experiences prompted them to reflect upon their prior experiences from other professional contexts, such as teaching and information technology, and identify ways to build upon their skills for use in instructional design settings. P2 discussed their perspective regarding this–

> *Oh, for my classes, at the time I had only taken two classes in the Spring. I focused on creating the design document, which was a familiar task for me as a teacher, involving all the necessary preparation work. This project provided valuable experience and exposure to media work. I wish I had gained more experience in observing the outcomes, particularly in relation to concepts like "ADDIE."[1] Evaluation and learners' interpretation, which I developed, allowed me to identify areas for improvement. It felt like I was continuously refining a draft, as projects often involve ongoing collaboration. It was challenging not to witness the project's complete journey from start to finish, as I missed out on the reward of seeing the final results of the project. It was a learning experience, and I wish I could have seen more of the results from the project, because I found myself in the middle of its development… The most valuable experience was learning when I made a mistake. It taught me not to fear trying new things. Then talking about it and collaborating about how to go back and fix any mistake, because I'm so used to when I create something that it's set in stone. But while creating courses on Coursera, they had to be reorganized, reworded, and the quizzes needed to be different. That was the value of being fluid while working on projects and not thinking everything was going to be done in the next week or so. I currently apply this mindset in my job, where things constantly change. Reflecting on the internship, the experience afterward was definitely significant.*

The interns were situated in a transdisciplinary collaborative work environment in which they were contributing to aspects of a larger project while also dealing with the inherent difficulties that come with working on such projects. These difficulties were simultaneously learning opportunities for engaging critical thinking and problem-solving skills to devise potential solutions to the challenges that did not seem to have clear instructions for solving. They were able to refine their time management, responsibility, and accountability as they completed their tasks as assigned, consistently following through with accomplishing their defined scope of work. P2's description of their steps in building online modules on Coursera involved making design choices that would support student engagement while also managing their workload in completing the various course components of readings, videos, discussion boards, and assessments.

Developing their identity as someone who “figures out solutions” was often mentioned by the interns as a core part of their internship experience, and they viewed the ability to create concrete instructional product drafts from parameters that tended to be somewhat abstract as an important IDT skill. Bridging the gap between theory and practice for IDT skill development involves connecting “learning about being a learning designer and a learning designer in practice” (Heggart & Dickson-Deane, 2021, p. 292). As the interns gained experience in putting these concepts and skills into practice, they indicated enjoyment in experiencing a sense of freedom to use their creativity productively through that process. P1 described how they navigated through this aspect of the internship–

> *My professor saying, “Make something like this,” and her ideas were abstract, and so it was my job to take the abstract and to try to make something concrete. That was...both enjoyable and difficult, because I thought I was just going to- the professor was going to be holding my hand and say, “OK, here's what I need you to do this, this, this, and this.” But, it was more of like an abstract idea– “Here, I want you to get something like this done, but I can't show you kind of what it looks like. It's so, here you go, make it happen, and then make something, send it to me, and I'll give you feedback on it.” So, that initial part was very difficult, but once I started to get into the rhythm of it, then it was just an iterative process of her giving me feedback, tuning some things, making feedback.*

While such a hands-on, iterative approach was difficult for the interns at the beginning, they all gradually seemed to become accustomed to the rhythm of considering the provided information, drafting their ideas into concrete forms that could then be discussed with their IDT faculty member, receiving regular constructive feedback on their drafted materials, and incorporating that feedback into the next iteration of their developing project. In providing authentic learning, the role of the instructor embodies coaching and scaffolding. Instructors support students at a metacognitive level by nurturing skills and strategies that help them “to accommodate, assimilate and build new knowledge structures” (Strydom et al., 2021, p.4).

Theme 2: Valuing Working in a Transdisciplinary Collaboration

The second theme observed through the analysis of the interviews was the interns’ perceptions of the value of working in transdisciplinary collaborations. The interns observed partnering faculty from multiple fields actively working together, sharing resources and knowledge, and making team decisions. The internship also broadened interns’ collaborative scope by giving them opportunities to work alongside professionals who are not teachers in an academic setting. As part of these collaborative partnerships, interfacing with SMEs was frequently mentioned. P1, for example, discussed how an IDT professional has to “collaborate with subject matter experts and then develop the content.” The interns were largely unfamiliar with the content of their instructional design projects prior to the internship, including AI/ML fundamental concepts and applications to health literacy, data management principles for biomedical research, and disaster-response food distribution. Working in the transdisciplinary context introduced them to these concepts and a network of individuals who contribute their expertise to the projects. For example, P3 relayed how he

learned about the work of a cancer research data management librarian when he was producing video segments for an online course–

> *What's interesting is that during an internship or any work-related capacity, you not only have the opportunity to learn but also to apply your knowledge. It's not just about watching instructional tutorials on YouTube; it's a hands-on experience where you are doing the work. In my case, I got the chance to become more acclimated with video editing software. Specifically, I used Final Cut for the internship and had the opportunity to edit interview footage featuring…a subject matter expert. He worked at the library of the Memorial Sloan Kettering Cancer Center and provided valuable insights into FAIR use principles.*

As in this example excerpt from P3, sometimes the interns interfaced with SMEs asynchronously through the provided materials and resources. Although the intern did not have direct real-time interaction with the SME, the process of working on the recorded video footage served as a meaningful connection between the SME and the intern in their instructional designer identity. By editing the video footage featuring the SME, the intern's identity was influenced by the SME as they were able to immerse themselves in the expert's knowledge and insights and interact with an SME who was from a completely different field than them.

There were also opportunities for the interns to interact directly with SMEs in an in-person national conference that took place toward the end of the summer, in which the interns co-presented prototypes of their work alongside the partnering faculty. For P1, it was not just the subject matter content that they gained through their participation in the conference but also their development of professional behaviors for networking with experts in such a setting–

> *I'm glad that I experienced something like that because I had never been in an environment with so many smart people, just important things happening and I get to be a part of that. Had I not done the things I did to get to where I'm at, I would have never experienced something like that. Having to dress up and having to be professional, look professional, and I would say that was one of my favorite things but also valuable to me in terms of how I grew up and its significance to me and now I feel that…if I were to attend any other event like that, that I belong and that I have the skill set and can do those things…Seeing my name on professional work like everybody did this and my name is on it. It makes me feel like I belong and like I can do intellectual things.*

In this experience, P1 was trying on a new identity that involved differences in their professional appearance and interpersonal interactions with others. Having experienced this firsthand with the support of the mentoring faculty provided a foundation for the interns' future continued development of their professional presence. The transdisciplinary partnership generated internship experiences in which the interns would begin to view themselves as part of a broader professional and academic community.

In working with new content from other disciplines, the interns found that they were also learning some of the content in the process. P4 spoke about this when asked if they came

away from the internship with a stronger understanding of areas beyond instructional design–

> *I would say yes, especially in a situation where I was learning the subject myself. I mean this was- I didn't know anything about artificial intelligence other than like the basics of what it was...and so kind of starting from even further back of a process than we did in our studies, because we got to choose the topic for that and kind of learn from there. I had to take it a step backwards and say, "OK, I need to learn this subject, figure out what's important for the audience to learn, and then design...to help the general public learn more as well."*

P4 was tasked with creating an immersive informal learning activity that would promote awareness of how AI/ML is being used in medical care. As they developed portions of the activity, they trialed their design as a potential learner, which strengthened their understanding of the concepts and helped them to empathize with the needs of the target learners.

Being placed in a position to interface with the specialized content also piqued their own interests in the material, as P1 explained–

> *Many people are making significant progress in the field of AI, and this internship served as my stepping stone and introduction to it. Previously, we were all familiar with buzzwords like AI, artificial intelligence, and machine learning, and how they are interconnected. However, through this internship, I gained practical understanding of how computer science, particularly artificial intelligence and machine learning, can be applied in the medical or scientific domains. This was one of the unique aspects of working with AIM-AHEAD that would have been different if I had worked with another department within the College of Education.*

It is interesting how in this excerpt the transdisciplinary collaboration is viewed at an organizational level between AIM-AHEAD (the federally-funded project with which the partnering faculty were affiliated) and the College of Education (where the interns' IDT graduate program was located). This assertion could infer a more extensive institutional relationship that goes beyond the individual collaborating faculty and permeates various aspects of the internship, possibly including faculty development, scholarship, and curriculum design.

Theme 3: Struggling Productively in the Complexity of Authentic Projects

Though the internship was difficult at times, the interns seemed to value the productive struggle overall that led to the authenticity of their learning through this experience. Interns were provided options for how they could contribute to the projects based on their interests and skill strengths. What made the internship authentic to them was how the challenges, logistics, and outcomes of the projects could not be neatly "mapped out" or "predicted" as they might be in an academic course. This dimension of the internship was what P4 felt was the most valuable part of the experience–

> *The whole process…being able to do it all, being able to do it all again for something that I didn't really know anything about and to have those weekly meetings and then to be able to take it to the conference at the end, that whole process was really something. I don't know if I'll ever be able to do again. And, it kind of encompassed- it was really cool to do every single step of that process. I feel like I've [done] instructional design in one summer. Being able to talk to so many different people, being able to- I mean, really, with these online courses, we don't get to talk to our professors very often. I mean, we can reach out, but that was also a great opportunity to speak with a professor one-on-one once a week. And normally we would talk about the project, but I really enjoyed that part of it too.*

Products were developed through iterations with drafts discussed weekly in one-on-one meetings between the intern and the IDT faculty member. P3 described how the guidance provided during these meetings helped them navigate the ill-structured tasks they needed to complete–

> *I did see how I was a part of a team and how input regarding the accessibility of the modules that I had the opportunity to work on, I could see how the feedback was communicated to me so I could take it and let me make those improvements, let me incorporate those insights or those suggestions. And I did feel that there was a feedback loop. There were opportunities where throughout various stages of the course development we had to stop and review and revise and we entertained different approaches. So, it, the finished product, I'd say, it made it to that state iteratively, and it was a team effort to get it there. I could say that I know [the IDT faculty member] worked with me hands-on. So, the way we structured our interactions, she gave me free range to apply my skills and take a stab at it with my own creative vision. But then, she would give me guidance from a scholarly perspective on how to best approach it, how to really apply the concepts and the principles of curriculum and instruction. So, that helped me really refine it into something that, OK, it takes several people to put their hands on and put their eyes on it and then help really curate it into its final product.*

The iterative, mentored approach contrasted with the typical course structure of the IDT graduate program which usually had specific assignment details and instructions for completing tasks. It took some time for the interns to comprehend the expectations of the internship and establish new routines to accomplish the target activities. Sometimes, they had to independently brainstorm and research new concepts that were unfamiliar to them. Design tensions between "what is and what ought to be" (Tatar, 2007, p. 415) surfaced at times, prompting them to question their next design decisions and how those decisions might align with the work of other team members who are working on different but related project components. Similar to the discourses of beginning designers explored in Howard and Bevins (2020), the interns grappled with tensions between what they understood theoretically for building effective instructional materials and the means of putting those ideas into concrete form for a real-world project.

Interns' desire for autonomy seemed to vary at different points in their design process. P2, for instance, said that they wanted "a little more structure beforehand, then creating a draft

and then getting feedback and restructuring things." However, they eventually figured out how to move forward in their work without such explicit instructions. P2 continued–

> *I've never been given an opportunity like this before. It's been some small projects for class, but nothing to the scale of people actually using my work and trying it. This helped me get my current job now because I have the experience of handling something like this. You can't really make too many mistakes. This internship allowed me to create my own path, and say "I actually could do that, I didn't know I could do that before, but now it's a skill that I can add to my resume." The internship helped me with project management, which I didn't realize how much instructional designers have to manage the project and set a timeline. I remember in June I set a timeline with the IDT faculty member to make sure that I was hitting the timelines and deadlines by the time we needed to present an offer. There was a lot of trial and error, which I'm now used to from this internship. I was ready for my new job. Because things change consistently, especially as an instructional designer, you have to work with subject matter experts and the facilitators. There are a lot of changes and being okay with those changes and still giving myself enough time to be able to take the change, represent it and make more changes.*

P2 recognized their growth in becoming more adaptable and embracing change through this internship. Similar to P2, there were noticeable indications across the interviews that the interns' self-identities were shaped as they took on roles and duties that initially looked difficult or unfamiliar to them. The internship also provided a glimpse into some of the pressures and responsibilities that would be expected from them as IDT professionals. Yet, the mentored approach framed mistakes as iterations that can be built upon, as mined for insights that can be useful for personal growth, development, and improvement.

As they immersed themselves in the work and embraced the learning process, the interns seemed to exceed their own expectations and realize capabilities beyond what they could previously do. The interns were at different places in the IDT graduate program, with some having taken just a few courses (including the foundational instructional design course) and others at the completion of their degree. P2, who was early in their program, described how they perceived their readiness for the expectations of the internship–

> *When you get an internship, you need to be at a certain level…in my case, I had completed two classes that I felt provided a foundation, but I still needed to take some more. To address this, it could be beneficial to establish a prerequisite of a certain number of credits before participating in the internship. Or, if you still want to be open, to everyone have it where it's a buddy system. I would have really liked it if I had a buddy to work on the project with. Instead of the independent work, I really prefer to collaborate, because I was so new. Now, if I were to do the internship again, I would be fine working by myself the way I did, but I would definitely suggest the buddy system.*

While the interns worked on different components of the larger projects, pairing the interns was not part of this structure. In considering the "buddy" suggestion, pairings could potentially leverage different skills and perspectives for shared tasks. However, working individually pushed the interns to try new things and "figure out" how to accomplish different

aspects of instructional materials development that they may not have chosen to do given the option to potentially “divvy up” tasks with a buddy. Overall, the interns expressed the value of receiving regular, detailed feedback on their progress, which they felt supported their personal growth in IDT skills.

Theme 4: Supporting Self-Efficacy in Instructional Design and Technology

The fourth theme identified in the interview data related to how the internship fostered the development of the interns’ self-efficacy in their IDT skills. Some interns expressed initially being fearful and hesitant at the beginning of the summer when they began their new IDT role, and they expressed misgivings about the sufficiency of their prior academic and professional backgrounds. The weekly check-in meetings with the IDT faculty member seemed to help with the transition of the interns into their new roles and supported their growth in IDT and professional job skills development. As they worked on their projects, they experienced shifts in their identities as they developed interests in new areas, acquired new skills, and broadened their capabilities through exposure to new perspectives and ideas. P1 discussed how they experienced such shifts–

> *As far as the professional experience, I wasn't entirely sure what to expect, and I hadn't done much research into what exactly an instructional designer does. I had the basic idea that it was some form of education and the creation of instruction. Once I started meeting with the IDT faculty member, initially I was kind of confused as to what exactly was expected of me, because I was afraid that I wasn't going to do the right thing and that maybe I needed hand-holding for the job. And so, it was a little bit frightening at the start of it, since this was my first experience doing a real job with a real partner working as an instructional designer. It was daunting at first, but then I started to get the hang of what I was supposed to do. I was assigned tasks to complete each week and would then provide updates and information on those tasks at the beginning of the following week. Eventually, this started to become a routine. Knowing that now, I see that's how instructional design works at the corporate level, where you're given some tools or some tasks and you'll have some meetings here and there, but it's primarily you out there getting the job done and then reporting back to your supervisor. This was a little bit of a different experience since my background is education and teaching. There are faculty meetings and you do meet with the principal, but it's never really reporting to someone else. It's more so meeting as a community and just sharing or collaborating. It wasn't direct commands from the top down, so that was one of the things that I also learned.*

The interns came to understand that IDT professionals do more than create curriculum, and they gained insights into some IDT responsibilities, work environments, communications, and interpersonal interactions. This exposure provided the interns with a glimpse of what to expect in the job market, a sense of what various IDT job titles do, and the kinds of tasks that IDTs may perform. It helped them to have greater clarity about the types of positions they wanted to pursue and aspects of work environments or structures that would likely match their needs and interests.

Interestingly, all the interns were job hunting during the internship and began new job positions at the summer's end. Thus, their reflections about the connections between their internship experiences and applications to future careers are situated in about six months of working in their new positions. The interns spoke about how their internship experience helped them to be more confident in their IDT capabilities and skills. P3 had prior experience and education in information technology and was pursuing the IDT graduate program as a way to connect their technical expertise to support training and development. Though they had completed some of the coursework, they harbored doubts about their capabilities in taking on an IDT professional identity. These doubts can carry emotional undertones in which IDT students question whether they are sufficiently qualified to be accepted in an IDT workplace (Howard & Benedicks, 2019). The internship seemed to come at the right time for each intern participant, providing encouragement and validation that they, indeed, could be successful in the education sector. P3 explained in this excerpt:

> *The internship helped me retain my enthusiasm. Let's say when you start something new, you're eager. But then as you get into the thick of it, you can start to wane and not be as engaged, or you can fall out of engagement with the material. But the internship helped invigorate me and say, "Hey, if you keep going, you can do this every day, it could be your full-time job if you really wanted it to be."…When I thought about the IDT program, then I thought about, of course, my experience in the internship, I could see how there was something after corporate. There's something else, and getting a feel for what that could be and being able to kind of lock it down, because there's so many things that everybody can do, but you just don't know what's your thing. I was, in my head, "I think this is my thing. I could be really good at this!" But, I needed exposure.*

The professional expectations of IDT positions became more realistic and understandable to the interns. They discovered multiple parallels between their future job opportunities and the kinds of tasks they had done for their internship projects; they also noted connections between technical and professional skills they felt were refined in the internship and the enactment of these skills to enhance their career trajectories. The internship seemed to shape the interns' conceptions of what careers might be possible and of interest for them to pursue as they gained practical experiences and industry insights, with noted changes to their short- and long-term career goals. P4, who chose to stay in teaching but moved into a different instructional context with their employment transition, spoke about how the internship prepared them for their new job–

> *Right after I got this internship, I got a different teaching job. This internship prepared me for that new role because I was transitioning from teaching a core class to teaching a career and technical education class. It was a really cool time and good timing because it helped me prepare to make my instructional materials for the current class I'm teaching and have that different mindset of how to train my students for these real-world skills versus purely academic classroom skills. My long-term goals have kind of changed, but I will say this internship did help me learn how to work with people in a way other than teaching, so again, back to that real-world aspect. I was so used to professional only being academic or in a school setting and I was able to stretch that beyond. I feel like this internship was really beneficial for anything I would want to do in the future.*

Time management and following through with tasks were professional work habits the interns felt that they refined during the internship. Indeed, professional skills such as communication, problem-solving, interpersonal skills, customer service, and resolution skills are pertinent to the typical activities of an IDT professional (Ritzhaupt et al., 2018). The weekly meetings with the IDT faculty member provided mentorship as well as accountability to ensure that the interns were progressing toward their project goals. The process of drafting, discussing, and revising their design ideas was also mentioned as useful to becoming accustomed to the work so that they could be prepared for their future jobs, and some contrasted this iterative approach with their prior graduate coursework where assignments are sometimes submitted once and not continuously reviewed and refined.

In considering how the development of these skills impacted interns' views of themselves, there are indications that the interns felt increasing confidence in their abilities to make design decisions and chart a path forward in completing their scope of work, despite navigating the challenges of working on ill-structured problems. They found that they could be successful in creating concrete products from conceptual ideas, utilizing their skills to complete tasks independently and creatively. The unstructured nature of ill-structured problems redefines roles that students can enact, providing them with expanded learning experiences that go beyond theoretical understandings (Savery, 2006). Such experiences allow students to experience a "culture of the practice" in which "only a close interaction with the work environment allows learners to acquire this culture" (Perusso & Baaken, 2020, p.3).

Conclusion

Students enjoyed the collaborative and social aspects of the internship, including the instructor-student mentoring relationship and social interactions among interns and project stakeholders. However, the less structured aspects of the internship posed some challenges for interns. In such environments, beginning designers tend to struggle with handling uncertainties and being asked to "make frequent judgments, and adapt formal models or theories into practical action, with little time for reflection" (McDonald & Rogers, 2021, p.1). Yet, these productive struggles offered intangible benefits of contributing to greater independence in their work processes, which enhanced their self-efficacy in their IDT capabilities.

Professional growth through such authentic learning experiences is supported through the provision of instructor mentorship (McDonald & Rogers, 2021). The weekly meetings the students had with the IDT faculty member not only fostered accountability for them to complete their projects within the internship timeframe but also facilitated constructive, individualized feedback on their progress. The iterative design process involved ideating, creating prototypes of ideas, discussing, receiving feedback, revising, re-discussing, and then revising again. Within a supportive learning environment, students were able to try out professional IDT skills such as working with SMEs from varied disciplines, contributing towards shared aims within a larger team, preparing final project deliverables for submission, and presenting to a professional audience. Through these experiences, they began to identify as emerging IDT professionals.

The projects provided interns with some exposure to AI/ML concepts and other disciplinary content, but their interest in the content beyond the scope of the projects was variable. The transdisciplinary partnership could be further leveraged through intentional activities in the internship structure that enhance intern learning of varied disciplinary content. Roundtable discussions with the larger team, brief presentations by collaborating faculty about their areas of expertise, panel sessions, workshops, seminars, short courses, and book/article talks could be organized.

Students extensively worked on portions of larger projects that continued to be developed beyond the summer. In the interviews, many interns asked about the status of their projects and expressed a desire to be privy to when their projects would be piloted and finalized. In addition to curiosity, this request could also be indicative of internal notions of responsibility, ownership, and pride in their work. Having a reduced project scope within the brief timeframe constraints could potentially enable these beginning IDT professionals to carry out the instructional design process more fully, from analysis through design and development to implementation and evaluation. Future research could explore the impacts of project scope on internship outcomes. Finally, the interviews completed in this study provided insights for the project team about intern experiences in the internship. Such data collection activities could be further expanded to investigate the perceptions of others in the partnership, such as collaborating faculty and mentors.

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Ethical Approval

The methodology and research instruments for this study were approved on January 11, 2023, by the Institutional Review Board at the University of Houston (STUDY00004025). Informed consent was obtained from all participants in this study.

References

Bandura, A. (1997). Self-efficacy: The exercise of control. W. H. Freeman.

Barber, W., King, S., & Buchanan, S. (2015). Problem based learning and authentic assessment in digital pedagogy: Embracing the role of collaborative communities. Electronic Journal of e-Learning, 13, 59-67.

Bester, J., & Pretorius, E. (2022). Linking reflective and authentic learning: Encouraging deeper learning experiences in a first-year civil engineering module at a university in South Africa. Scholarship of Teaching and Learning in the South, 6(3), 108–122. https://doi.org/10.36615/sotls.v6i3.251

Boud, D., Keogh, R., & Walker, D. (1985). Promoting reflection in learning: A model. In D. Boud, R. Keogh, & D. Walker (Eds.), Reflection: Turning experience into learning (pp. 18- 40). Kogan Page.

Briggs, C. L. (2007). Curriculum collaboration: A key to continuous program renewal. The Journal of Higher Education, 78(6), 676–711. http://www.jstor.org/stable/4501239

Collins, A. (1988). Cognitive apprenticeship and instructional technology. BBN Labs Inc.

DeVaughn, P., & Stefaniak, J.E. (2020). An exploration of how learning design and educational technology programs prepare instructional designers to evaluate in practice. Educational, Technology, Research, and Development, 68, 3299-3326. https://doi.org/10.1007/s11423-020-09823-z

Devies, B., Ostermeyer, E., Allbritton, M. R., Pacheco, D. R., Dizor, C., Henry, K. J. R., & Clay Jr., A. (2022). Reimagining curriculum design: Using focus groups to enhance leadership

educator practice. Journal of Higher Education Policy and Leadership Studies, 3(2), 103-120. https://dx.doi.org/10.52547/johepal.3.2.103

Dunlap, J. C. (2005). Problem-based learning and self-efficacy: How a capstone course prepares students for a profession. Educational Technology Research and Development, 53(1), 65–85. https://doi.org/10.1007/BF02504858

Ge, X., Chen, C.-H., & Davis, K. A. (2005). Scaffolding novice instructional designers' problem-solving processes using question prompts in a web-based learning environment. Journal of Educational Computing Research, 33(2), 219–248. https://doi.org/10.2190/5F6J-HHVF-2U2B-8T3G

Gee, J. P. (2011). How to do discourse analysis: A toolkit. Routledge.

Gibbs, G. (2007). Analysing qualitative data. Sage.

Golafshani, N. (2003). Understanding reliability and validity in qualitative research. The Qualitative Report, 8(4), 597-606. https://doi.org/10.46743/2160-3715/2003.1870

Heggart, K., & Dickson-Deane, C. (2021). What should learning designers learn?. Journal of Computing in Higher Education, 34(2), 281–296. https://doi.org/10.1007/s12528-021-09286-y

Herrington, J. (2015). Introduction to authentic learning. In V. Bozalek, D. Ng'ambi, D. Wood, J. Herrington, J. Hardman & A. Amory (Eds.), Activity theory, authentic learning and emerging technologies: Towards a transformative higher education pedagogy (pp. 61-67). Routledge. https://doi.org/10.4324/9781315771823

Herrington, J., Reeves, T.C. and Oliver, R. (2010). A guide to authentic e-learning, Routledge.

Hew, K. F., & Knapczyk, D. (2007). Analysis of ill-structured problem solving, mentoring functions, and perceptions of practicum teachers and mentors toward online mentoring in a field-based practicum. Instructional Science, 35(1), 1–40. http://www.jstor.org/stable/41953727

Howard, C. D., & Benedicks, R. (2019). An industry liaison for graduate learning in instructional design. TechTrends, 64, 451-459. https://doi.org/10.1007/s11528-019-00465-4

Howard, C. D., & Bevins, K. L. (2020). "The blue dot thing": A discourse analysis of learner interlanguage in instructional design. CoDesign: International Journal of CoCreation in Design and the Arts, 18(2), 186-207. https://doi.org/10.1080/15710882.2020.1789173

Hynie, M., Jensen, K., Johnny, M., Wedlock, J., & Phipps, D. (2011). Student internships bridge research to real world problems. Education and Training, 53(1), 45–56. https://doi.org/10.1108/00400911111102351

Lowell, V. L., & Moore, R. L. (2020). Developing practical knowledge and skills of online instructional design students through authentic learning and real-world activities. TechTrends, 64(4), 581–590. https://doi.org/10.1007/s11528-020-00518-z

Martínez-Argüelles, M. J., Plana-Erta, D., & Fitó-Bertran, À. (2023). Impact of using authentic online learning environments on students' perceived employability. Educational Technology Research and Development, 71, 605-627. https://doi.org/10.1007/s11423-022-10171-3

Martin, F. & Ritzhaupt, A. D. (2021). Standards and competencies for instructional design and technology professionals. In J. K. McDonald & R. E. West (Eds.), Design for learning: Principles, processes, and praxis. EdTech Books. https://edtechbooks.org/id/standards_and_competencies

McDonald, J.K., & Rogers, A. (2021). “I can do things because I feel valuable”: Authentic project experiences and how they matter to instructional design students. The Journal of Applied Instructional Design, 10(2), 1-14. https://dx.doi.org/10.51869/102/jm

Mettas, A.C., & Constantinou, C.C. (2007). The technology fair: a project-based learning approach for enhancing problem solving skills and interest in design and technology education. International Journal of Technology and Design Education, 18, 79-100. https://doi.org/10.1007/s10798-006-9011-3

Nworie, J. (2022). The increasing quest for instructional designers and technologists in higher education and corporate settings. Contemporary Educational Technology, 14(1), 1-20. https://doi.org/10.30935/cedtech/11481

Ornellas, A., Falkner, K., & Edman Stålbrandt, E. (2019). Enhancing graduates’ employability skills through authentic learning approaches. Higher Education, Skills and Work-Based Learning, 9(1), 107–120. https://doi.org/10.1108/HESWBL-04-2018-0049

Perusso, A., & Baaken, T. (2020). Assessing the authenticity of cases, internships and problem-based learning as managerial learning experiences: Concepts, methods and lessons for practice. International Journal of Management in Education, 18(3). https://doi.org/10.1016/j.ijme.2020.100425

Rubiah, Degeng, I.N., & Setyosari, P. (2020). The impact of incorporating concept mapping in project-based learning on learning strategy and cognitive styles upon learning outcomes of writing skills. International Journal of Research, 7, 122-130.

Ritzhaupt, A. D., Martin, F., Pastore, R., & Kang, Y. (2018). Development and validation of the educational technologist competencies survey (ETCS): Knowledge, skills, and abilities. Journal of Computing in Higher Education, 30(1), 3–33. https://doi.org/10.1007/s12528-017-9163-z

Savery, J. (2006). Overview of problem-based learning: Definitions and distinctions. Interdisciplinary Journal of Problem-Based Learning, 1(1), 9–20. https://doi.org/10.7771/1541-5015.1002

Strydom, S., Wessels, H., & Anley, C. (2021). Moving beyond the tools: Pre-service teachers' views on what they value in a digital literacy short course. *South African Journal of Childhood Education*, *11*(1), 1-11. https://doi.org/10.4102/sajce.v11i1.929

Tartar, D. (2007). The design tensions framework. Human-Computer Interaction, 22(4), 413-451. https://doi.org/10.1080/07370020701638814

Versland, T. M. (2016). Exploring self-efficacy in education leadership programs: What makes the difference? Journal of Research on Leadership Education, 11(3), 298–320. https://doi.org/10.1177/1942775115618503

Voogt, J.M., Pieters, J.M., & Handelzalts, A. (2016). Teacher collaboration in curriculum design teams: effects, mechanisms, and conditions. Educational Research and Evaluation, 22(3-4), 121-140. https://doi.org/10.1080/13803611.2016.1247725

Appendix A: Semi-structured Interview Protocol

1. What was your reason for completing the summer 2022 internship?
2. Describe some of the things that you feel you learned through the internship.
    a. What instructional design concepts did you better understand through the internship?
    b. What artificial intelligence-related concepts did you learn about through the internship?
    c. Were there any technologies that you learned how to use through the internship? If so, what?
    d. Describe some of the skills you had the opportunity to use and develop during the internship.
3. What are your thoughts regarding the authentic learning opportunities presented through the internship? Authentic learning means that learning is situated, or takes place, in realistic contexts of future use.
4. The internship was created through a partnership between the IDT program area and the other discipline areas connected to the projects (population health, medicine, and computer science).
    - What do you think about this partnership?
    - In what ways do you see such partnerships as supporting the work of instructional design and technology (IDT) professionals?5. In what ways did your courses prepare you for your internship?
5. What aspects of the internship did you find most valuable?
6. What aspects of the internship did you most enjoy?
7. What aspects of the internship did you find most challenging?
8. How did the summer 2022 internship experience impact your graduate studies or professional work?
    - Is there anything that you are doing differently as a result of your internship experience?
    - How did the internship impact your understanding of your career goals?

9. How could the internship design be improved?

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[1] The ADDIE acronym is used for the instructional design approach of Analyze, Design, Develop, Implement, and Evaluate.

Enacting Change: Examining the Instructional Designer's Role in Higher Education through a Coaching Lens

Stefaniak, J. & Gilstrap, S.

Coaching | Higher Education | Instructional Design | Instructional Designers

The purpose of this paper is to review studies which have explored relationship dynamics between instructional designers and faculty in higher education with the intent to identify examples of how instructional designers engage in the six streams of coaching as proposed by Passmore (2007). Upon review of our findings, we offer heuristics to support instructional designers' abilities to approach their working relationships with faculty through a coaching lens. Recommendations for future research to better understand the implications and barriers a coaching lens may impose will also be discussed.

Introduction

To date, there have been several studies that have explored competencies espoused by instructional designers in higher education (Pollard & Kumar, 2022; Ritzhaupt & Kumar, 2015). In addition to designing and developing instruction, instructional designers often find themselves navigating relationships with the faculty members they are assisting to enhance their courses. While some of these working relationships can be very productive, others have been a source of conflict as evidenced by research examining these relationships specifically (Mueller et al., 2022a, b; Richardson et al., 2019).

In an integrative literature review, Chen and Carliner (2021) reviewed, critiqued, and synthesized 29 studies that explored the relationship between faculty and instructional designers. Their findings suggested that instructional designers serve within a customer-service relationship whereby the instructional designer provides a variety of services as requested by the faculty responsible for designing and teaching their course (e.g., Bawa & Watson, 2017; Kumar & Ritzhaupt, 2017). Their literature review findings also reported instructional designers could be viewed as change agents (Campbell et al., 2009; Schwier et al., 2007). Chen and Carliner (2021) describe the instructional designer's role as a change agent to mean they are responsible for helping "connect faculty's knowledge and thoughts with larger social contexts" (p. 481). Within their collaborative working relationships with faculty, instructional designers can coach the faculty members to consider the implications of the activities being presented and carried out in their respective courses. Within this capacity, the instructional designer is helping to support the faculty's understanding of how their instructional contributions can support learners, the institution, and society. Examples may include engaging in discussions about how course content in one course connects with other courses in a program, thinking about how different courses may or may not impact students' career paths within their respective fields, and considering how ethical practices may be present in different situations.

Other studies that have explored relationships and conflict between faculty and instructional designers, to date, have alluded to the instructional designer being responsible for guiding faculty with varying levels of design experience through the instructional design process. We are interested in exploring the role of instructional designers as coaches.

Coaching is defined as a "one to one process of helping others to improve, to grow and to get a higher level of performance, by providing focused feedback, encouragement and raising awareness" (Pousa & Mathieu, 2010, p. 34). Building upon the idea of an instructional designer in higher education settings as a change agent to help faculty make broader connections to support their course design, we want to explore the instructional designer's role in enacting change through a coaching lens.

In a paper examining the role of coaching within the context of instructional design, Stefaniak (2017) explored coaching frameworks that emphasized coach-coachee relationships, problem setting, goal setting, and situational awareness. The four most prevalent frameworks included Giglio et al.'s (1998) three-phase coaching framework that explores goal settings across three phases: 1) building commitment and personal transformation; 2) moving the executive forward; and 3) facilitating the personal

transformation. Within this framework, emphasis is placed on the coachee's personal and professional development.

Hooijberg and Lane (2009) developed a multisource feedback framework to support coaching where the coach provides feedback from multiple sources. This framework suggests that a variety of feedback sources should be provided to the coachee to provide a holistic feedback experience that supports their development. "This allows for the coachee to receive and interpret guidance from multiple lenses" (Stefaniak, 2017, p. 27).

The cognitive apprenticeship framework (Collins et al., 1989) promotes a one-to-one teaching relationship where the coach provides the apprentice (coachee) with a guided learning experience to enhance their cognitive skills in authentic settings. The cognitive apprenticeship framework consists of components that are carried out across the duration of the apprenticeship: modeling, coaching, articulation, reflection, scaffolding, and exploration.

Passmore's (2007) Integrative Coaching Model proposes six streams that coaches engage in as they provide feedback and guidance to their coachee throughout their working relationship:

- Developing the coaching relationship
- Maintaining the relationship
- Promoting permanent change
- Supporting conscious cognition
- Identifying motivational factors
- Considering cultural considerations within the organization.

The model provides a framework for an advised sequence of actions, but in reality, coaches must intuit and adapt when needed (Passmore, 2017). This approach to coaching is similar to the role instructional designers fulfill in design where they must adapt, iterate, and update their designs throughout a project.

Purpose of This Paper

While the abovementioned frameworks focus on fostering relationships between coaches and coachees, we believe Passmore's (2007) framework can best support the instructional designer-faculty member relationship. While Giglio et al.'s (1998) framework promotes goal setting and personal development, instructional designers may struggle with the degree of coaching they may impart to faculty members with whom they may be assigned to work. Giglio's framework works best when the coach and coachee have a mutual understanding of the coaching relationship.

Passmore's (2007) six streams allow for an instructional designer to provide feedback and guidance at varying levels along the duration of the working relationship. With Passmore's (2007) framework being grounded in workplace environments, the coach can provide specific feedback around projects. This dovetails nicely with how instructional designers are often paired with faculty to provide feedback and support throughout the design process (Richardson et al., 2019). While they often assume an informal coaching role, they can

structure their feedback around specific project tasks making it more likely for the faculty members to be receptive of the feedback they are receiving. In this paper, we examine how Passmore's (2007) six streams of coaching could be used by instructional designers while working with faculty members in higher education settings.

Considerations for the Integrative Coaching Model in Instructional Design

Stream 1: Developing the coaching relationship

Studies that have examined relationship dynamics between instructional designers and faculty have identified developing a sense of partnership, communication, collaboration, cooperation, and commitment as being critical to the success of a collaborative relationship (Outlaw & Rice, 2015; Stevens, 2013). To achieve a successful coaching partnership, Passmore (2007) outlines five critical elements including:

- The coach should have a positive self image, and confidence in their ability to work collaboratively with others.
- The coach should have confidence in the coachee, specifically in their ability to identify potential solutions to fit their needs.
- The coach should be able to effectively demonstrate empathy for the coachee.
- The coach should be able to communicate honestly and provide constructive feedback to the coachee.
- The coach should be able to keep activities focused on the coachee's needs.

In the context of higher education, instructional designers are often perceived as supportive or evaluative roles, straining their ability to form meaningful relationships with faculty (Richardson, et al, 2019). Overcoming this perception requires instructional designers to possess confidence in their abilities and expertise to design effective teaching and learning experiences. The ability to communicate design decisions confidently and intelligently is necessary to gain faculty 'buy in' and trust (Richardson, et al, 2019; Ritzhaupt & Kumar, 2015). Instructional designers draw on their knowledge of educational theories and instructional design models to craft a design process that fits each project (Ritzhaupt & Kumar, 2015; Schwier et al., 2007). Successful collaborative relationships between instructional designers and faculty require holding mutual respect for each other's talents, time, and effort (Stevens, 2013).

Bawa and Watson (2017) named empathy as a key characteristic of the success of a course design collaboration and noted the importance of remembering the faculty and their students are ultimately the customers. Instructional designers must remember the course will eventually be owned, managed, and taught by the faculty, so goals and timelines should be based on their needs and schedules (McCurry & Mullinix, 2017).

Instructional designers encounter several challenges in establishing productive working relationships with faculty because they fear relationships being adversarial or awkward (Stevens, 2013). Chao et al. (2010) noted that faculty members may feel a sense of vulnerability having another individual review and critique their work. Cowie (2010) emphasizes that overcoming these vulnerabilities requires deep trust and appreciation of the specialized and complimentary feedback shared between designers and faculty. Aligned with coaches staying focused on the needs of the coachees, Ritzhaupt and Kumar (2015) explain that "unique to higher education, instructional designers placed the goals and teaching beliefs of faculty first and adapted their instructional design processes or theories to the needs of the teaching faculty member who is also the subject matter expert and the needs of students in their contexts" (p.65). The ability to skillfully ask faculty questions is not only useful for determining needs and goals but can also be used to gently influence faculty and steer them in a certain direction (Bawa & Watson, 2017).

It is important to remember that developing the coaching relationship takes time. We recommend instructional designers take some time during this initial phase to explain roles and expectations for the project. These initial conversations can aid in alleviating challenges when the instructional designer begins providing constructive feedback throughout the design project. This also helps to establish trust and encourages open dialogue, ultimately leading to a more successful and productive coaching experience.

Stream 2: Maintaining the relationship

Passmore (2007) describes how, in order to successfully maintain relationships in the coaching process, coaches should carefully monitor their own emotions and behaviors, and those of the coachee, and adapt their own behaviors appropriately, being careful to maintain professionalism while showing personal investment and concern for the coachee's success. Ritzhaupt and Kumar (2015) note the ability to maintain a working relationship with faculty is considered to be an important expectation of instructional designers working in higher education. The most productive faculty-instructional designer relationships are those that have been going on for an extended period of time. Established relationships or a history of past teamwork helps, and hosting in-depth conversations early in the design process supports open dialogue (Chao et al., 2010).

Depending on the extent of the project and the expectations the instructional designer and faculty members have of one another, it is important time is given for the instructional designer to establish a shared vision with the faculty they are supporting. To become a strong team, taking time to set expectations and allowing enough space for adequate reflection and feedback is key (Chao et al., 2010). As the collaborative relationship progresses, trust is developed and expertise demonstrated, leading to lowered barriers of self-preservation and openness to the contributions of others (Cowie, 2010).

Stream 3: Supporting Behavioral Change

This phase aims to deepen problem-solving, plan appropriately, and adapt behaviors to reach stated objectives by following the GROW (goal, reality, options, way forward) model (Passmore, 2017). The team must name the desired outcome, consider the current situation, explore the available options, and draft a contract about how to proceed (Passmore, 2017).

This stream models the project management aspects of the instructional design process. The similarities between executive coaching and instructional design become more visible as the application of the ubiquitously simple GROW coaching model parallels the common use of the foundational ADDIE (analyze, design, develop, iterate, evaluate) process, often adapted for use in instructional design practice (Branch, 2017). The GROW model (Alexander & Renshaw, 2005) is a four-step model:

- Goal: Identify the employee's goal.
- Reality: Establishing present conditions.
- Options: Determining what can be done.
- Will: How an employee can move forward.

Passmore's (2007) coaching framework recommends coaches support their coachees by promoting permanent change. An instructional designer working in higher education will often find themselves encountering challenges with this phase. A common challenge is that faculty often rely so heavily on the instructional designers to develop their content that they do not necessarily pay sufficient attention to how content has been structured or the rationale for why it may be structured in a particular way (Outlaw & Rice, 2015). In Ritzhaupt and Kumar's (2015) study of instructional design competencies in higher education, one respondent explained, "You know the old adage that you give someone a fish, they eat for a day. You teach them to fish, they eat for a lifetime. My job is giving fishing lessons. I try to teach the faculty how to use the system so they can be self-sufficient" (p.59). Instructional designers should prioritize explaining their thoughts, recommendations, decisions, and processes to faculty members to support their successful independence after the collaboration period ends.

It is in this stream of the Integrative Coaching Model where Passmore (2007) notes many novice coaches spend most of their time, as they often "work with evidence at its face value and seek the easiest solutions to issues" (p.72). Novice instructional designers identify a problem based on the presented characteristics and apply the simplest solution, rather than explore the problem and its confounding factors the way an expert would approach a situation (Ertmer & Stepich, 2005; Perez & Emery, 1995; Stefaniak & Hwang, 2021).

Promoting permanent change through a coaching lens could help instructional designers mitigate conflict when working collaboratively with faculty. In a study examining how instructional designers approach conflict with faculty in design projects, Mueller et al. (2022) noted that a lack of clarity and collaborators' understanding of stakeholder's roles can pose challenges, ultimately resulting in conflict. In their study interviewing instructional designers about their experiences with managing conflict, Mueller et al.'s (2022) findings suggest instructional designers who were successful at managing conflict with faculty used strategies to "convey their personal commitment and attentiveness to the faculty member" (p. 6).

We recommend the four steps in the GROW model (Alexander & Renshaw, 2005) be used by instructional designers while they communicate with faculty during an initial project kickoff meeting. The GROW framework can support discussion to specifically acknowledge the reality pertaining to the project. During this time, the instructional designer and faculty ensure they have a shared understanding regarding the contextual factors (conditions) that

will directly impact the project. By acknowledging these factors, the faculty member and instructional designer can brainstorm possibilities that are feasible, and efficient, and address the conditions imposed on the project. By engaging in these discussions both stakeholders can work to have a shared understanding of the situation and expectations related to the project.

Stream 4: Supporting conscious cognition

A key theme in this stream of coaching is to help the coachee find any irrational beliefs that are driving their current behaviors, and challenge them (Passmore, 2017). Irrational beliefs could be assumptions related to teaching the specific subject matter, challenges with delivering instruction in a different format (i.e., online versus face-to-face), or obstacles associated with designing and delivering authentic learning experiences. Instructional designers are often partnered with faculty to develop or revise online or technology-enhanced courses. Bunk et al. (2015) studied faculty attitudes towards teaching online, and noted faculty may feel reluctant due to concerns about missing face-to-face interaction, lack of time to become familiar with technology, lack of support with technology, and concerns about compromised academic honesty. These concerns highlight the complexity of instructional designer's role, as they not only must explore instructional issues and brainstorm solutions, but also must "convince the faculty SME that the solution is both viable and reasonable to implement" (Pollard & Kumar, 2022, p. 13)

There is the potential for a lot of informal learning to take place during meetings between the instructional designer and the faculty they are supporting. Instructional designers can support faculty members' conscious cognition by explaining the relationship between their design activities and decisions and engaging the faculty in conversations about how different instructional strategies can support specific content and expected learning outcomes in their course. In coaching, Passmore (2007) recommends techniques such as "reframing, immersion, visualization, and the use of homework tasks" (p. 73) to support the coachee's belief in themselves to achieve their desired outcome. Checklists can also be used as an organizational tool to help guide work and discussions through the design process. Campbell et al. (2009) note that instructional designers often come from a variety of backgrounds, and gain many of their possessed skills with technology informally while on the job. This experience can act as a support for increasing confidence in a faculty member's ability to overcome any barriers they have towards changing their teaching methods.

Outlaw and Rice (2015) found in universities that employed a course development model where the instructional designer completed the course-building activities alone, faculty were initially thankful to be relieved of the workload, but ultimately found it to be a disservice as it "deprives them of additional technical skillsets and certain levels of autonomy" after the collaboration period has ended (Outlaw & Rice, 2015, p. 1). Faculty need to be able to update course content on their own, once the instructional designer has moved on to a new project. Instructional designers who demonstrate their processes empower their faculty partners' future independence and assist in developing technical competencies.

Chao et al. (2010) recommend the use of quality standards in design, as they can serve as a formative guiding outline to the course design process and positive reinforcement to faculty. Specifically, using quality standards in design helped faculty feel confident in their courses'

ability to withstand scrutiny from university review committees, and served as a checklist of alignment between activities and objectives (Chao et al., 2010). The use of quality standards can act as a scaffold for demonstrating many of the tasks that instructional designers often work on behind the scenes. By structuring conversations and meetings around how progress is being made in regard to instructional design standards, instructional designers can effectively engage in communication that is centered around improving the project.

Stream 5: Identifying motivational factors

Everyone is motivated by different factors and instructional designers in higher education will find themselves working with faculty who have been assigned to work with them for a variety of reasons. While some faculty may be enthusiastic about improving the design of their courses or transitioning courses from a face-to-face environment to an online learning environment, others may feel as though they did not have a choice. Instructional designers can extrinsically motivate faculty by helping them to identify and integrate different instructional applications in their programming, create more efficient mechanisms for grading, and set up learning management systems to be updated and modified easily each time a course is taught (Outlaw & Rice, 2015).

In this stream of coaching, Passmore (2007) recommends the use of motivational interviewing to assist the "client bring into conscious awareness the consequences of their behaviors and thus stimulates a stronger motivation to act" (p. 74). This includes gauging where the client is starting from, rating readiness to change, and then building arguments in support of change (Passmore, 2007). In the environment of higher education, instructional designers are not likely to overtly ask a faculty member how ready they are to change but rather try to determine readiness based on interactions. Starting with suggesting incremental changes rooted in areas of the faculty member's strengths can yield early small wins, creating momentum for the project.

Additionally, the International Board of Standards, for Training, Performance, and Instruction (IBSTPI) has identified several competencies to promote communication, such as using effective questioning techniques, soliciting and providing constructive feedback, and preparing written and oral messages to promote consensus-building and actively engage audiences (Koszalka et al., 2012). Passmore's (2007) recommendation for motivational interviewing can equip instructional designers with the necessary strategies to engage in questioning to obtain the information they need to support the project, identify the project needs, and communicate in meaningful ways that would not simultaneously be considered obtrusive by faculty.

Stream 6: Considering cultural considerations within the organization

When designing instruction within a higher education institute, instructional designers need to be aware of the multiple systems and subsystems that influence their work. During the coaching relationship, instructional designers can work with faculty to help them understand the larger system and the processes that have been put in place to support maintenance and sustainable instructional solutions.

Stream 6 of the coaching relationship is typically achieved after an extended period of time. Maintaining open dialogue between the instructional designer and the faculty member can help to support discussions related to the various systems at work. The factor of time allows for the course to be implemented, ultimately allowing for the faculty member to see how their design project may align with other projects in the future.

In the Integrative Coaching Model, Passmore (2007) highlights that all other streams occur simultaneously with this systemic stream, which includes all stakeholders and influencers. In instructional design, this could include faculty, peers teaching within the same program, administrators, and ultimately, the learners for whom the instruction is being designed. Campbell et al. (2007) note that "every institution has an embedded culture" and that "culture thrives on shared values and shared perspectives of the world" (p. 653). Instructional designers in higher education are working in a role that supports innovation, access, and inclusion.

Instructional designers may face the challenge of being in a situation where values or standards are not shared. Campbell et al. (2007) state "instructional designers feel responsibility for more things than they have the ability to influence," and may "find themselves in positions that require them to act beyond their authority, or in a vacuum of authority" (p. 660). It is important to note Passmore's (2007) streams do not occur in a linear fashion. As instructional designers and faculty work together over an extended period of time, they can inform and support each other to address the cultural considerations embedded within their institution.

Conclusion

The majority of studies that have focused on instructional designers in higher education are focused on their abilities to engage in design activities, online learning strategies, and interacting with faculty. Other areas that warrant exploration include how instructional designers can weave project management strategies into the design process. To date, there is a paucity of literature that has explored project management (i.e., Kline et al., 2020; Laying, 1997; Williams van Rooij, 2011). We believe there is potential to explore the synergies between coaching and project management as they relate to instructional design practices in higher education.

In a study examining project management competencies expected of educational technology professionals in higher education, Kline et al. (2020) identified several competencies related to communicating with stakeholders, and using tools for project planning, and management. Integrating coaching strategies within the design process can enhance the instructional designer's ability to cultivate relationships with faculty, Coaching strategies coupled with project management strategies could greatly impact an instructional designer's ability to make effective and efficient decisions.

Future Research

Some of the earliest papers exploring relationships between instructional designers and faculty members date back to the 1980s (i.e., Wedman, 1989). As instructional designers are

seen as a prominent resource within higher education institutions, there is a growing body of research exploring the dynamics that occur between instructional designers and faculty (Bawa & Watson, 2017; Chen & Carliner, 2021; Richardson et al., 2019). Additionally, a subarea of research exploring how instructional designers manage conflict is emerging (Fortney & Yamagata-Lynch, 2013; Mueller et al., 2022a, b).

As these relationships continue to be explored in greater depth, research exploring strategies to help instructional designers mitigate conflict is needed. We recommend additional studies be conducted that examine how various coaching frameworks can be used to support instructional designers' abilities to support faculty with their projects while providing the necessary guidance and resources for faculty to become self-sustaining upon completion of the project.

Additionally, more research is needed to explore ways in which instructional designers communicate with stakeholders during projects. Communication and conflict resolution are recognized as being essential instructional design competencies. By developing a better understanding of the challenges instructional designers face, appropriate strategies and efforts can be integrated into instructional design programs to support the development of novice instructional designers entering the field.

References

Alexander, G., & Renshaw, B. (2005). *Supercoaching*. Random House.

Bawa, P., & Watson, S. (2017). The chameleon characteristics: A phenomenological study of instructional designer, faculty, administrator perceptions of collaborative instructional design environments. *The Qualitative Report, 22*(9), 2334.

Branch, R.M. (2017). Characteristics of foundational instructional design models. In R.A. Reiser & J.V. Dempsey (Eds.), *Trends and issues in instructional design and technology* (4th, ed., pp. 23-30). Pearson.

Bunk, J., Li, R., Smidt, E., Bidetti, C., & Malize, B. (2015). Understanding faculty attitudes about distance education: The importance of excitement and fear. *Online Learning, 19*(4).

Campbell, K., Schwier, R. A., & Kenny, R. F. (2009). The critical, relational practice of instructional design in higher education: An emerging model of change agency. *Educational Technology Research and Development, 57*(5), 645-663. https://doi.org/10.1007/s11423-007-9061-6

Chao, I.T., Saj, T., & Hamilton, D. (2010). Using collaborative course development to achieve online course quality standards. *The International Review of Research in Open and Distance Learning, 11*(3), 106–126. https://doi.org/10.19173/irrodl.v11i3.912

Chen, Y., & Carliner, S. (2021). A special SME: An integrative literature review of the relationship between instructional designers and faculty in the design of online

courses for higher education. *Performance Improvement Quarterly, 33*(4), 471-495. https://doi.org/10.1002/piq.21339

Collins, A., Brown, J.S., & Newman, S.E. (1989). Cognitive apprenticeship: Teaching the crafts of reading, writing, and mathematics. In L.B. Resnick (Ed.), *Knowing, learning, and instruction: Essays in honor of Robert Glaser* (pp. 453-494). Lawrence Erlbaum Associates.

Cowie, P., & Nichols, M. (2010). The clash of cultures: Hybrid learning course development as management of tension. *Journal of Distance Education, 24*(1), 77–90.

Ertmer, P.A., & Stepich, D.A. (2005). Instructional design expertise: How will we know it when we see it? *Educational Technology, 45*(6), 38-43.

Giglio, L., Dimante, T., & Urban, J.M. (1998). Coaching a leader: Leveraging change at the top. *Journal of Management Development, 17*(2), 93-105.

Fortney, K. S., & Yamagata-Lynch, L. C. (2013). How instructional designers solve workplace problems. *Performance Improvement Quarterly, 25*(4), 91-109. https://doi.org/10.1002/piq.21130

Hooijberg, R., & Lane, N. (2009). Using multisource feedback coaching effectively in executive education. *Academy of Management Learning & Education, 8*(4), 483-494 https://doi.org/10.5465/amle.8.4.zqr483

Kline, J., Kumar, S., & Ritzhaupt, A. D. (2020). Project management competencies of educational technology professionals in higher education. *The Journal of Applied Instructional Design, 9*(3).

Koszalka, T.A., Russ-Eft, D.F., & Reiser, R. (2012). *Instructional designer competencies: standards* (4th ed.). Information Age Publishing.

Kumar, S., & Ritzhaupt, A. (2017). What do instructional designers in higher education really do? *International Journal on E-Learning, 16*(4), 371-393.

Layng, J. (1997). Parallels between project management and instructional design. *Performance Improvement, 36*(6), 16-20.

McCurry, D.S. & Mullinix, B.B. (2017). A concierge model for supporting faculty in online course design. Online *Journal of Distance Learning Administration, 20*(2), 1–7.

Mueller, C. M., Richardson, J. C., Watson, S. L., & Watson, W. R. (2022a). How instructional designers approach conflict with faculty. *The Journal of Applied Instructional Design, 11*(1). https://edtechbooks.org/jaid_11_1/how_instructional_de

Mueller, C. M., Richardson, J., Watson, S. L., & Watson, W. (2022b). Instructional designers' perceptions & experiences of collaborative conflict with faculty. *TechTrends, 66*, 578-589. https://doi.org/10.1007/s11528-022-00694-0

Outlaw, V., & Rice, M. (2015). Best Practices: Implementing an Online Course Development & Delivery Model. Online *Journal of Distance Learning Administration, 18*(3), 1–11.

Passmore, J. (2007). An integrative model for executive coaching. *Consulting Psychology Journal: Practice and Research, 59*(1), 68-78. https://doi.org/10.1037/1065-9293.59.1.68

Perez, R.S., & Emery, C.D. (1995). Designer thinking: How novices and experts think about instructional design. *Performance Improvement Quarterly, 8*(3), 80-95. https://doi.org/10.1111/j.1937-8327.1995.tb00688.x

Pollard, R., & Kumar, S. (2022). Instructional designers in higher education: Roles, challenges, and supports. The *Journal of Applied Instructional Design, 11*(1). https://dx.doi.org/10.51869/111/rp

Pousa, C., & Matthieu, A. (2014). Boosting customer-orientation through coaching: A Canadian study. *International Journal of Bank Marketing, 32*(1), 60-81.

Richardson, J. C., Ashby, I., Alshammari, A. N., Cheng, Z., Johnson, B. S., Krause, T. S., Lee, D., Randolph, A., & Wang, H. (2019). Faculty and instructional designers on building successful collaborative relationships. *Educational Technology Research and Development, 67*(4), 855-880. https://doi.org/10.1007/s11423-018-9636-4

Ritzhaupt, A. D., & Kumar, S. (2015). Knowledge and skills needed by instructional designers in higher education. *Performance Improvement Quarterly, 28*(3), 51-69. https://doi.org/10.1002/piq.21196

Schwier, R.A., Campbell, K., & Kenny, R. (2007). Instructional designers' perceptions of their interpersonal, professional, institutional and societal agency: Tales of change and community. In M. Keppell (Ed.), *Instructional design: Case studies in communities of practice* (pp. 1-18). IGI Global.

Stefaniak, J.E. (2017). The role of coaching within the context of instructional design. *TechTrends, 61*(1), 26-31. https://doi.org/10.1007/s11528-016-0128-2

Stefaniak, J.E. & Hwang, H. (2021). A systematic review of how expertise is cultivated in instructional design coursework. *Educational Technology Research and Development, 69*(6), 3331-3366. https://doi.org/10.1007/s11423-021-10064-x

Stevens, K.B. (2013). Contributing factors to a successful online course development process. *The Journal of Continuing Higher Education, 61*(2), 2-11. https://doi.org/10.1080/07377363.2013.758554

Wedman, J. F. (1989). Overcoming resistance to formal instructional development processes. *Educational Technology Research and Development, 37*(4), 41-46. https://doi.org/10.1007/BF02307720

Williams van Rooij, S. (2011). Instructional design and project management: complementary or divergent? *Educational Technology Research and Development, 59*, 139-158.

https://doi.org/10.1007/s11423-010-9176-z

Creating Stronger Design Systems for Collaboration: Skills, Resources, and Practices Needed to Support an Effective Co-Design Experience

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Co-Design
Collaboration
Industry-Academic Partnerships
MOOCs
Value-Based Care

This paper describes a design case that addressed a healthcare training need for clinicians and administrators about Value-Based Care (VBC) through the design, development, implementation, and evaluation of seven massive open online courses (MOOCs). The context was an industry-academic partnership that linked subject matter experts in VBC with university faculty and designers. Courses were developed using a co-design approach to provide multiple perspectives on the issues involved, ensure the accuracy of the content, and enhance the alignment between the

design and stakeholders' needs. The team worked collaboratively to define the opportunity, brainstorm ideas, prototype solutions, evaluate prototypes based on identified needs, and ultimately design online educational experiences for a wide variety of learners in different healthcare contexts. This paper shares lessons learned about creating stronger design systems for collaboration in the areas of selecting and supporting co-design teams, fostering collaborative learning environments, and modeling collaboration in the instructional design process. Reflections about this design case underscored the importance of forming relationships among team members, which was a key outcome of the co-design structure and, facilitated the communication and psychological safety needed to support the iterative cycles of feedback during course development.

Introduction

This paper describes a design case (Howard, 2011) that addressed a critical healthcare training need through the design, development, implementation, and evaluation of seven massive open online courses (MOOCs). The context was an industry-academic partnership that linked subject matter experts (SMEs) with university faculty and designers. The courses were developed using a co-design approach that sought to integrate multiple perspectives, ensure content accuracy, and align stakeholders' needs to the instructional strategy (Sanders & Stappers, 2008, 2012). Studies have shown that co-design is effective in developing professional development curricula in MOOCs (Kolling et al., 2022; McGregor et al, 2018; Perestelo-Perez, 2020) and that the meaningful involvement of stakeholders is critical to improving learning and practice as well as producing effective outcomes (Iniesto et al., 2022; O'Brien et al., 2021; Redman et al., 2021).

There has been an increase in the use of co-design methods to create healthcare educational programs (Slattery et al., 2020) that recognize, value, and integrate the different types of knowledge and experiences of all stakeholders. In this "highly facilitated, team-based process" (Penuel et al., 2007, p. 53), the team in the present design case worked collaboratively to define the education opportunity, brainstorm ideas, prototype solutions,

evaluate the prototypes based on identified needs, and ultimately produce on-demand courses for learners in targeted healthcare contexts.

Background

Co-Design

Co-design can facilitate collaborations among educators, health professionals, and industry leaders in developing innovative and effective educational programs that consider the needs and perspectives of all stakeholders. It is being used increasingly in health and social care contexts (Masterson et al., 2022), providing notable impacts in facilitating change and improvement in policies and practices (Harrison et al., 2022; Robert et al., 2015). Roschelle & Penuel (2006) define co-design as "a highly-facilitated, team-based process in which teachers, researchers, and developers work together in defined roles to design an educational innovation, realize the design in one or more prototypes, and evaluate each prototype's significance for addressing a concrete educational need" (p. 606). Ideally, co-designed curricula emerge through an integration of the knowledge, resources, and contributions of all team members (Ward et al., 2018). In coordinating the involvement of different contributors, prototypes can provide tangible means to incorporate user characteristics, community values and perspectives, and relevant initiatives of a particular context in an iterative project development progression (Australian Healthcare and Hospitals Association, 2017; Iniesto et al., 2022).

One of the key benefits of co-design is that it is situated in authentic contexts, that is, "… the reality of people's everyday work environment rather than designing from theory something that 'should' work for them" (Ward et al., 2018, p. 10). Because stakeholders are involved throughout design and development (Bird et al., 2021; Bolster et al., 2021; Iniesto et al., 2022; Palomo-Carrión et al., 2022), the resulting designs tend to be user-centered, considering the needs and perspectives of all end-users (Kolling et al., 2019; McGregor et al., 2018) and leading to higher user satisfaction (Steen et al., 2011). In addition, stakeholder involvement fosters "'considerable depth and richness' that emerges through the co-design process" (Blackwell et al., 2017) and ensures that the product is effective (Maciver et al., 2021). In sum, this collaborative process supports trust and engagement among the co-design team members through synergy and interaction (Ohag et al., 2023; Torrents et al., 2021).

Massive Open Online Courses for Health Professionals

The seven courses that were developed in this project were Massive Open Online Courses (MOOCs). MOOCs are courses available to theoretically unlimited numbers of participants, without formal admission, accessible via the Internet, and formatted as organized programs of study (Kennedy & Laurillard, 2019; Nieder et al., 2022). MOOCs have become a "global phenomenon" over the past decade (Shah, 2020, para. 3), growing from 300,000 learners in 2011 to 220 million learners in over 3,100 courses in 2021 (Shah, 2021). The MOOC platform used in the present project is Coursera, which currently boasts 118 million learners (Shah, 2023) and over 700 health- and medicine-related courses (Coursera, 2023b).

MOOCs have become an attractive, no- or low-cost option for continuing education for health professionals who have varied hours and schedules that make in-person professional development sessions more difficult (Eglseer, 2023; El Ali et al., 2023; Gleason et al., 2021; Gómez Gómez & Munuera Gómez, 2021; Nieder et al., 2022). For example, Coursera courses such as Health Informatics and Healthcare Delivery Providers enable healthcare professionals to stay current with the latest research and best practices in their field. In a scoping review of 39 studies that focused on healthcare MOOCs in low- and middle-income countries, Nieder et al. (2022) found that MOOCs can support healthcare providers' enhancement in their knowledge and understanding. MOOCs have also been found to contribute to significant improvements in healthcare professionals' skills in areas of malnutrition (Eglseer, 2023), dementia (Eccleston et al., 2019), nutrition (Adamski et al., 2022), and patient safety (Gleason et al., 2021).

MOOCs can also expand learners' professional learning networks, connecting them to exchange ideas and share reflections on best practices (Anderson et al., 2020; Kennedy et al., 2019). This feature can be especially helpful for those in rural or remote areas who may not have as many opportunities for networking and collaboration (Kolling et al., 2019; Nieder et al., 2022). MOOCs are also used by healthcare professionals for purposes of assessments and certifications that aid in meeting licensing requirements and demonstrate their commitment to continuing education (Maxwell et al., 2018).

Co-Design of MOOCs

Using a co-design approach to the development of a MOOC involves collaboration among multiple stakeholders, including instructors, instructional designers, SMEs, technology specialists, and learners. Co-design has been used successfully in the development of many healthcare-related MOOCs. For example, the IC-Health project co-designed thirty-five MOOCs in eight different languages to improve the digital health literacy skills of European citizens (Perestelo-Perez et al., 2020). From a research perspective, the co-design approach generates design principles that can be useful for informing future designs in this innovative healthcare context (Jackson-Barrett et al., 2019).

This collaborative approach presents some challenges, though, to design teams. With so many stakeholders involved in the design, diverse perspectives on how a MOOC should be designed and delivered (Álvarez-Pérez et al., 2022; Cinquin et al., 2021) can add complexity to reaching consensus on important decisions. More time may be needed for this process (Iniesto et al., 2022) amidst competing demands of deadlines and course launch schedules.

The Co-Design Process in the Development of the Value-Based Care MOOCs

Defining the Content

The scope of content for the courses focused on value-based care (VBC), an alternative payment model that structures payments for healthcare providers, including hospitals and physicians, around improving and maintaining patient health while simultaneously reducing cost (NEJM, 2017; Rutherford et al., 2022; Teisberg et al., 2020). VBC addresses concerns about the current unsustainable trajectory of healthcare spending in the U.S. under a traditional fee-for-service model in which health insurance companies have paid healthcare providers for services on a volume basis. The COVID-19 pandemic has further exacerbated the need for changes to health systems' funding, affordability, and equity and "forced healthcare players to make radical shifts to how care is delivered and used" (Noël, 2022, p. 26). Studies have also demonstrated a significant association between a VBC program and positive outcomes for patients, such as medication adherence (Agarwal et al., 2018) and increased valued healthcare services while controlling costs (Zhang & Cowling, 2023). VBC information, processes, and best practices are not typically taught in medical schools (Freer, 2023), leading to a gap in knowledge for many healthcare providers. According to the 2020 Deloitte Survey (Abrams et al., 2020), most U.S. physicians believe that the next generation of physicians should focus on understanding the business of medicine (65%) and how to deliver care that fosters prevention and well-being (59%). Since the Centers for Medicare & Medicaid Services plans to transition all Medicare patients to VBC arrangements by 2030 (CMS, 2023), there is an urgent need for professional development that provides information and training in this area.

Defining the Learners

Anderson and Meiselbach (2023) suggest that clinicians need to be engaged in the design of successful VBC programs. A survey by the New England Journal of Medicine Catalyst Insights Council found that many clinicians and administrators are positive about the potential benefits of VBC models with more than two-thirds indicating that their organization's value-based payments would likely increase "somewhat" or "greatly" in the next two to three years (Shrank & Powers, 2022). The need for understanding VBC has thus emerged for a range of healthcare professionals, including clinicians, administrators, and support staff, to be able to implement and manage their practice using VBC, as well as carry out their roles within larger care teams (Teisberg et al., 2020; Walsh, 2020). Therefore, the target learners for the VBC MOOCs in this design case included all healthcare professionals who work with patients, have a clinical background, and possess basic healthcare and Medicare knowledge.

Defining the Design Context

The University of Houston (UH) and Humana Inc., a national health plan and healthcare services company, formed a strategic partnership in 2020 to provide innovative educational programs for current and future healthcare professionals and create programs for community transformation. The University also had an established partnership with Coursera to support the design and development of MOOCs in different disciplinary areas. Coursera's features offer asynchronous, on-demand learning capabilities aligned with project aims (Coursera, 2023a). For example, Coursera's progress-tracking feature visualizes learners' real-time progress and suggests the next steps toward target goals. Project-based learning features were also utilized in the development of a capstone that learners would complete to obtain the Value-Based Care specialization, a micro-credential that signifies

their competency in this area. The data analytics features of the platform enabled the design team to continually improve the content and delivery of the courses after they were launched.

Defining Teams, Roles, and Responsibilities

A core team was initially formed of two UH faculty from the Learning, Design, and Technology program area and two Humana professionals who drafted the agreement for the partnership. Jointly embracing the assumption that "anybody is an expert regarding their own experience and mobilizes their practical and experiential knowledge as well as their conceptual knowledge" (Cavignaux-Bros & Cristol, 2020, para. 5), the co-design group was expanded to involve multiple teams that included the project manager; learning and graphic designers; medical, nursing, and social work faculty; physicians with VBC experience; other SMEs; and potential learners (see Table 1). Intentionally including potential learners in strategic points of the design fostered understanding and appreciation of stakeholder perspectives in the co-design process (Farmer, 2021). During the yearlong design and development of the courses, the core team met online once a week to discuss the progress of tasks on the project plan. The six extended multidisciplinary teams also met weekly to discuss and develop the course content. Core and support teams worked together in the development of the videos and other course resources, and stakeholders were engaged throughout every step to provide input and feedback.

Table 1

Teams, Roles, and Responsibilities

Role	Responsibilities
Executive Steering Committee	
Senior executives from both organizations (e.g., Senior VPs at Humana and UH)	• Sets the overall strategic direction for the project. • Ensures that the project aligns with the organization's goals and objectives. • Guides priorities and focus areas. • Allocates resources to the project, including funding, staff, and other necessary resources. • Monitors the progress of the project and ensures that it is on track to meet its objectives.
Program Sponsors	
Sponsors from Humana and UH(Highest level change leader)	• Ensures alignment with each organization's goals; connects the project to the larger organization; ensures look and feel (branding) is consistent with look and feel of the organization's requirements. • Determines structure and components. • Identifies existing documentation and reference materials. • Brings in talent.

Role	Responsibilities
	• Selects project manager.
Core Team	
Project Leaders	• Facilitates communication between different stakeholders (organizing meetings, leading discussions, and ensuring that everyone has an opportunity to share their ideas and feedback). • Determines project goals and objectives based on the needs and requirements of the project in collaboration with the stakeholders involved. • Identifies key project milestones and establishes timelines for achieving them (with the project manager). • Manages the resources required for the project (personnel, equipment, and materials) to meet quality standards and objectives. • Leads the project evaluation, uses feedback and data to make improvements, and ensures that it meets the needs of stakeholders.
Project Manager	• Defines project scope (goals, objectives, and deliverables) in collaboration with project leaders and ensures the project stays within boundaries. • Creates project plan in collaboration with project leaders (outlines the tasks to be completed, the timeline for completion, and the resources required). • Tracks project tasks to ensure deadlines are met. • Facilitates communication within the co-design team (schedules regular meetings, creates communication channels, and makes sure that all team members are up-to-date with project progress and changes). • Conducts a reflective “lessons learned” activity with co-design group to inform iterations of the project and future collaborative work.
Extended Multidisciplinary Team	
Learning Designer	• Collaborates in the development of the “Process Thinking Documents” and guided questions for each course. • Interviews subject matter experts to develop content for courses by using the “Process Thinking Documents.” • Works with subject matter experts to ensure content accuracy. • Creates the final design document for each course and revises it after stakeholder feedback.

Role	Responsibilities
Subject Matter Experts for all courses from Humana and UH	• Contributes to content development for all courses. • Helps identify and prioritize design opportunities. • Evaluates design ideas against project requirements. • Provides feedback on the feasibility and practicality of proposed solutions. • Provides feedback for the final design document for all courses.
Specialized Services Team	
Subject Matter Experts in specific content areas	• Contributes to content development for specific topics in their specialty areas. • Provides feedback on the final design documents in their specialty areas.
Compliance Specialists	• Ensures that the final design documents comply with Humana guidelines and align with organizational goals.
Communication Specialists	• Supports copyediting of final design documents.
Branding Team	• Ensures look and feel (branding) is consistent with the look and feel of each organization.
Development Team	
Graphic Designer	• Creates designs that effectively communicate the project goals (sketches, mockups, and prototypes). Solicits feedback from other teams and revises designs to meet program needs. • Prepares the final graphic files for implementation.
Videographers	• Films subject matter expert speakers. • Creates videos from presentation and audio files. • Edits video content through the selection of footage and the addition of sound and visual effects.
Multimedia Specialists	• Works closely with other teams to conceptualize multimedia elements that support the design vision of the project. • Creates multimedia elements for the courses (animations, infographics, diagrams).
Pilot Testing Team	

Role	Responsibilities
Pilot Testing Lead and Learners who are representative of the different populations who would take the courses (social work, insurance specialists, clinicians, social workers, nurses)	Pilot Testing Lead: • Works with the project manager to develop a plan for pilot testing (defines the testing environment and parameters, test user groups with roles and objectives, and testing timelines) • Selects pilot testers. • Monitors pilot testers during the review. • Collects and analyzes feedback from pilot testers. Manages course update process based on feedback. Pilot Testing Learners: • Enrolls in the pilot courses. • Provides feedback about the course structure, usability, and content accuracy.

Collaborative Team Processes

Approach and Communication Document

To frame the project, the executive steering committee and program sponsors created an *Approach and Communication Document,* an important resource that would serve as the roadmap for the development activities to follow. The document articulated the communications strategy, project management processes and tools, and team organizational structure.

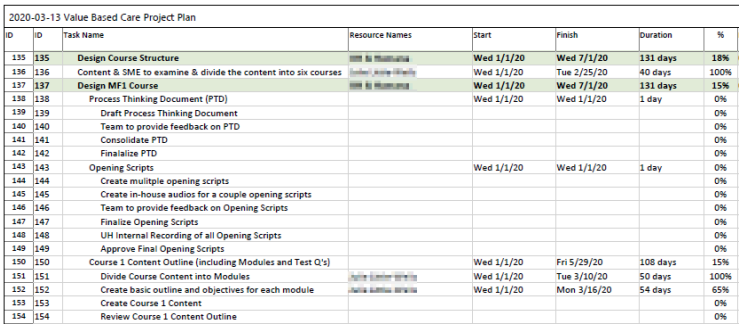
Project Plan

The project manager then created the project plan spreadsheet with input from the core team. This living document became a crucial tool in the co-design process as it helped ensure that all stakeholders had a clear understanding of the implementation of the project scope, goals, and timeline. It also facilitated communications regarding key deliverables, deadlines, and responsibilities.

The spreadsheet listed tasks across four project phases: (a) gather current and updated materials, (b) design course structure, (c) develop media materials, and (d) deliver the courses. Key collaborative team processes were initiated and employed in each phase. In particular, psychological safety techniques were chosen to promote openness, respect, and empowerment for all members of the project. For example, inquiry language was used to ensure that all members had opportunities to provide feedback, share ideas, and ask questions (Harrison et al., 2022). Also specified in the project plan were names of SMEs who would provide the content and resources for specific course materials, as well as start and finish dates, status, and notes about approvals. Figure 1 shows a screenshot of a sample page of the project plan.

Figure 1

VBC MOOCs Project Plan Excerpt



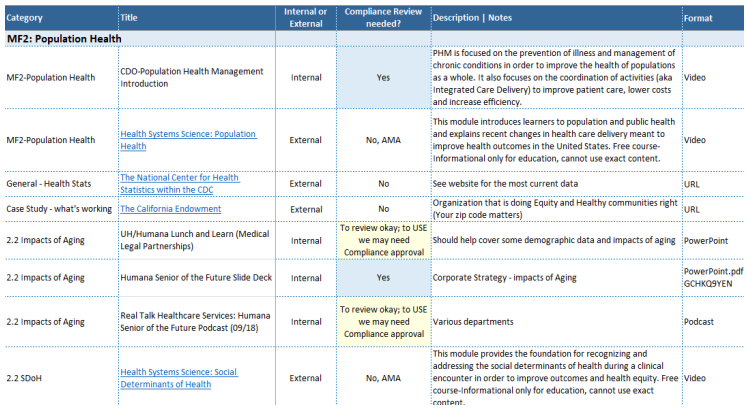
2020-03-13 Value Based Care Project Plan

ID	ID	Task Name	Resource Names	Start	Finish	Duration	%
135	**135**	**Design Course Structure**	[redacted]	**Wed 1/1/20**	**Wed 7/1/20**	**131 days**	**18%**
136	136	Content & SME to examine & divide the content into six courses	[redacted]	Wed 1/1/20	Tue 2/25/20	40 days	100%
137	**137**	**Design MF1 Course**	[redacted]	**Wed 1/1/20**	**Wed 7/1/20**	**131 days**	**15%**
138	138	Process Thinking Document (PTD)		Wed 1/1/20	Wed 1/1/20	1 day	0%
139	139	Draft Process Thinking Document					0%
140	140	Team to provide feedback on PTD					0%
141	141	Consolidate PTD					0%
142	142	Finalalize PTD					0%
143	143	Opening Scripts		Wed 1/1/20	Wed 1/1/20	1 day	0%
144	144	Create mulitple opening scripts					0%
145	145	Create in-house audios for a couple opening scripts					0%
146	146	Team to provide feedback on Opening Scripts					0%
147	147	Finalize Opening Scripts					0%
148	148	UH Internal Recording of all Opening Scripts					0%
149	149	Approve Final Opening Scripts					0%
150	150	Course 1 Content Outline (including Modules and Test Q's)		Wed 1/1/20	Fri 5/29/20	108 days	15%
151	151	Divide Course Content into Modules	[redacted]	Wed 1/1/20	Tue 3/10/20	50 days	100%
152	152	Create basic outline and objectives for each module	[redacted]	Wed 1/1/20	Mon 3/16/20	54 days	65%
153	153	Create Course 1 Content					0%
154	154	Review Course 1 Content Outline					0%

Phase 1: Gather Current and Updated Materials. The project lead from Humana identified, contacted, set up, and conducted meetings with the SMEs at the company and the university who were specialists on various topics in the curriculum. For example, in the Population Health course, one of the experts led the population health vision and strategy for Humana and another from UH was a board-certified internist, clinician educator, and health services researcher. The SMEs offered insights about the scope of the proposed content and aided the team by providing relevant materials that could be used to inform the program, such as reports, presentations, videos, and articles. These materials were cataloged in a resource spreadsheet, approved by the compliance and communication specialists where applicable, and shared with the core team. Figure 2 shows a screenshot of an excerpt from the resource spreadsheet.

Figure 2

Resource Spreadsheet Excerpt



Category	Title	Internal or External	Compliance Review needed?	Description | Notes	Format
MF2: Population Health					
MF2-Population Health	CDO-Population Health Management Introduction	Internal	Yes	PHM is focused on the prevention of illness and management of chronic conditions in order to improve the health of populations as a whole. It also focuses on the coordination of activities (aka Integrated Care Delivery) to improve patient care, lower costs and increase efficiency.	Video
MF2-Population Health	Health Systems Science: Population Health	External	No, AMA	This module introduces learners to population and public health and explains recent changes in health care delivery meant to improve health outcomes in the United States. Free course-informational only for education, cannot use exact content.	Video
General - Health Stats	The National Center for Health Statistics within the CDC	External	No	See website for the most current data	URL
Case Study - what's working	The California Endowment	External	No	Organization that is doing Equity and Healthy communities right (Your zip code matters)	URL
2.2 Impacts of Aging	UH/Humana Lunch and Learn (Medical Legal Partnerships)	Internal	To review okay; to USE we may need Compliance approval	Should help cover some demographic data and impacts of aging	PowerPoint
2.2 Impacts of Aging	Humana Senior of the Future Slide Deck	Internal	Yes	Corporate Strategy - impacts of Aging	PowerPoint.pdf GCHKQ9YEN
2.2 Impacts of Aging	Real Talk Healthcare Services: Humana Senior of the Future Podcast (09/18)	Internal	To review okay; to USE we may need Compliance approval	Various departments	Podcast
2.2 SDoH	Health Systems Science: Social Determinants of Health	External	No, AMA	This module provides the foundation for recognizing and addressing the social determinants of health during a clinical encounter in order to improve outcomes and health equity. Free course-informational only for education, cannot use exact content.	Video

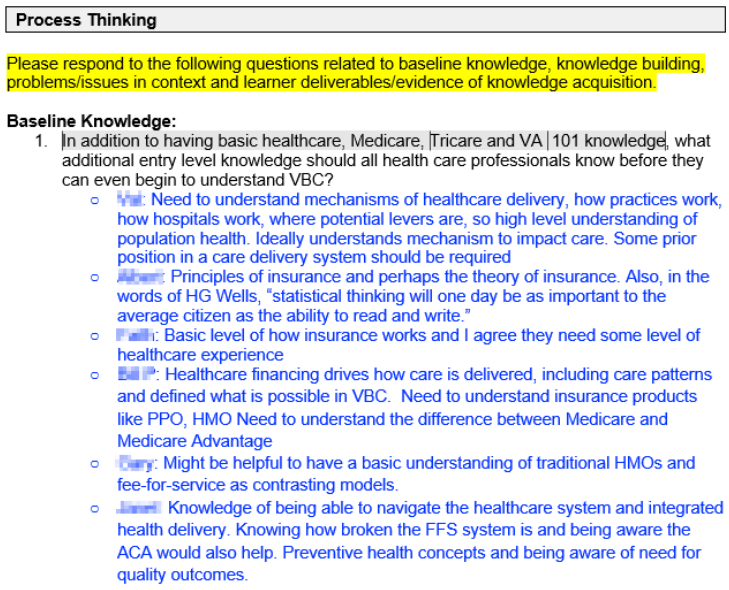
Phase 2: Design Course Structure. The core and support teams brainstormed and discussed the content for each course in a "Process Thinking Document" (PTD). The PTDs were constructed to outline the anticipated steps, decisions, and considerations for each course. They identified the various activities that would be involved in completing each task or achieving each goal and became useful communication tools for this project, as they

were used to track content provided by SMEs and to identify areas for further development and improvement. The PTDs were instrumental in curating content that would be accurate, relevant, and up-to-date. As part of the co-design approach, they facilitated team collaboration, ensured that goals were aligned among team members, and fostered continuous improvement during the project.

Each PTD was structured as a living design document that provided an overall course goal; specific objectives for each associated topic; a detailed outline of the content and how it related to varied learner contexts; questions for the SMEs about baseline knowledge, knowledge building, and problems/issues in context; ideas for learner deliverables and assessments; and a section for noting requests for internal and external content/resources and story creation ideas. PTDs were sent as Microsoft Word documents to SMEs with requests to return the documents with their responses and comments or to alternatively discuss their answers with the learning designer. Figure 3 illustrates how the PTD organized input from six SMEs (shown in blue).

Figure 3

SME Input Excerpt from Course 1 Process Thinking Document



Process Thinking

Please respond to the following questions related to baseline knowledge, knowledge building, problems/issues in context and learner deliverables/evidence of knowledge acquisition.

Baseline Knowledge:

1. In addition to having basic healthcare, Medicare, Tricare and VA 101 knowledge, what additional entry level knowledge should all health care professionals know before they can even begin to understand VBC?
   - [redacted]: Need to understand mechanisms of healthcare delivery, how practices work, how hospitals work, where potential levers are, so high level understanding of population health. Ideally understands mechanism to impact care. Some prior position in a care delivery system should be required
   - [redacted]: Principles of insurance and perhaps the theory of insurance. Also, in the words of HG Wells, "statistical thinking will one day be as important to the average citizen as the ability to read and write."
   - [redacted]: Basic level of how insurance works and I agree they need some level of healthcare experience
   - [redacted]: Healthcare financing drives how care is delivered, including care patterns and defined what is possible in VBC. Need to understand insurance products like PPO, HMO Need to understand the difference between Medicare and Medicare Advantage
   - [redacted]: Might be helpful to have a basic understanding of traditional HMOs and fee-for-service as contrasting models.
   - [redacted] Knowledge of being able to navigate the healthcare system and integrated health delivery. Knowing how broken the FFS system is and being aware the ACA would also help. Preventive health concepts and being aware of need for quality outcomes.

Once constructed, each course PTD served as a reference point for the team throughout the project. The documents were also later reviewed by the associated topic SMEs, the compliance office, and communications specialists to ensure consensus and clarity before course media components were created. Figure 4 provides an excerpt from the first course PTD in which SME input was utilized for the instructional plan.

Figure 4

Excerpt of Course 1 Instructional Plan in Process Thinking Document

MF2-M1-VIDEO 4: SOCIAL DETERMINANTS OF HEALTH

VIDEO SCRIPT:

Let's listen to this brief story about Sally McBride.

Sally lives in Houston, Texas. She is currently unemployed and is a Medicaid beneficiary. She struggles with poorly controlled asthma that she has had throughout her life. Sally attributes her current inability to work to her health, which worsened after August 2017, when Hurricane Harvey flooded her apartment. She did her best to dry and clean her house, but her landlord refused to help after Sally complained about a persistent and reoccurring mold problem. This mold has made her asthma much worse, and she has difficulty breathing. Sally would like to move to a healthier place to live, but she is overwhelmed by many challenges. She depends on public transportation since she doesn't have a car, so it is difficult for her to look for a new place to live. She is also worried about moving costs and possibly higher rent for a better place to live.

Heads Up! [Embedded Quiz, not graded, must complete. Check all that apply, 2 attempts]

Sally is facing what factor or factors that could contribute to her poor health? Check all that apply.

A. She has chronic asthma and is not able to control it very well. B. She is unemployed and on Medicaid, which means she likely faces ongoing financial and transportation challenges, perhaps struggling to purchase and keep purchasing her asthma medication.

C. She is living with mold in her apartment, which triggers asthma attacks.

D. She likely can't afford to move to a place where the landlord or owner takes care of the property.

Feedback on individually selecting A, B, C, or D: Incorrect. “All of these are factors that could contribute to Sally’s poor health."

Feedback on Check all: Correct. “Yes! All of these are factors that could contribute to Sally’s poor health.”

Phase 3: Develop Media Materials. Most of the content in each course was delivered through short videos of five to eight minutes each. The graphic designer and core team collaborated to create presentations in Microsoft PowerPoint that were based on the instructional plans in the PTDs. Shared cloud-based storage in Dropbox was utilized to manage the multiple media elements, materials drafts, and core team feedback. The voice-over narration was recorded by multiple diverse voices within and outside the design group, and the graphic designer paired the audio files with the presentation slides to produce the videos. Figure 5 shows a sample of a presentation slide accompanied by the voice-over script.

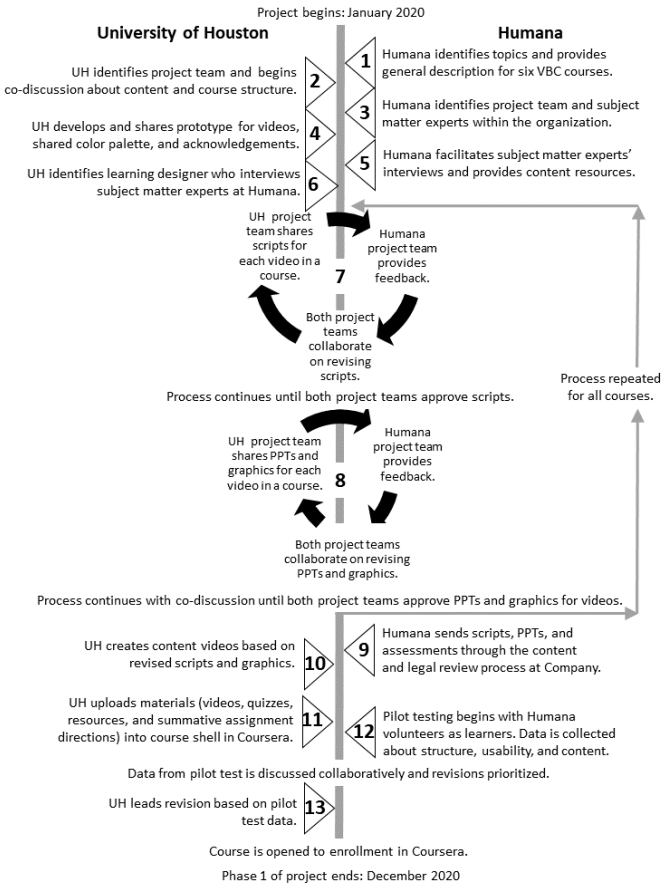
Figure 5

Sample Presentation Slide with Voice-Over Script in the Notes Section

Phase 4: Deliver the Courses. The course materials were uploaded onto the Coursera platform, and pilot testing was conducted to determine the effectiveness of each course and identify needed revisions before the full program launch. Approximately 20 learners who were similar to the target audience for the courses were asked to participate, including health professionals and students at UH, clinicians, nurses, and Humana employees. The learners worked through course content and provided feedback about accuracy and delivery. The core team reviewed the feedback and collaboratively revised the courses. The complete VBC specialization was then released to the broader Coursera learner base in December 2020. Figure 6 illustrates the collaborative design and development process from the inception of the project to the delivery of the courses.

Figure 6

Collaborative Design and Development Process of the VBC Project



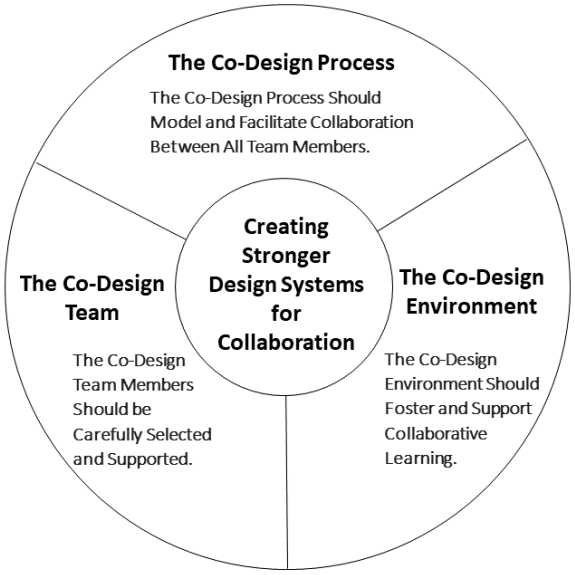
Discussion of Lessons Learned

In reflecting on this project, there are key lessons learned that offer insights into the building and sustaining of strong, resilient, collaborative teams. As depicted in Figure 7, the lessons

address three co-design aspects of creating stronger design systems for collaboration–team, environment, and process. The lessons within each aspect are described in the sections that follow.

Figure 7

Co-Design Aspects Insights from the VBC Co-Design Project



Team: The Co-Design Team Members Should be Carefully Selected and Supported

For co-design teams to operate efficiently, effectively, and with a high degree of cohesion, team members should be selected purposefully. Successful co-design teams develop shared understandings of goals, roles, and contributions. They also utilize project management effectively while supporting team members' personal growth and learning. For the VBC project, some particular lessons emerged regarding how to identify and support team members.

The Co-Design Team Members Should Contribute Diverse Experiences, Excellent Communication Skills, and a Positive Working Relationship

Since co-design projects can be challenging and time-consuming (Pallesen, 2020; Roschelle & Penuel, 2006), it is essential to have team members who are willing to put in the effort to ensure success. In the VBC project, one team member noted,

> *You need to have the right people around the table to do the project. You need people who are collaborative, who have an open mind, who are willing to think out-of-the-box, and who have a team mentality. To be successful, I think it's critical to have the right people on the team, so you can move the project forward.*

Team members should demonstrate commitment to the project and be able to dedicate the necessary time to make it succeed.

When selecting team members for a co-design project, several factors must be considered. Selecting team members with diverse experiences can provide differing perspectives, skills, and levels of expertise (Penuel et al., 2011) that can deepen the collaboration (Muller-Schoof et al., 2023). Minichiello and Caldwell (2021) noted that the development of an interdisciplinary team is critical to a project's success, "While interdisciplinary team members possess specific expertise and defined project roles, they also willingly contribute across shared technical objectives that span the boundaries of their area of expertise" (p. 48). Team members should demonstrate good communication skills, a positive attitude, and a willingness to contribute to the team's success. Facilitating and supporting collaborative communication about design ideas is essential to the success of a co-design project (Kolling et al., 2019, 2022; Nakanjako et al., 2021).

The Co-Design Team Members Should Have a Shared Understanding of Goals, Roles, and Responsibilities

Having a shared understanding of project goals, roles, and responsibilities is crucial for the success of a co-design team. A shared understanding ensures that all team members work towards the same objectives to minimize confusion or miscommunication about the project's direction. It promotes a sense of trust and cooperation that can lead to increased productivity, creativity, and innovation as team members build on each other's ideas and expertise more cohesively.

When team members know what is expected of them and how they contribute to the broader project goals, many conflicts and confusion about who is responsible for what tasks can be avoided. Because individual commitment to projects can wane over time as competing priorities arise, it can be helpful to establish team members' connections to the project at the beginning and then intentionally reestablishing connections periodically as the team navigates the design and development phases (Minichiello & Caldwell, 2021).

The Co-Design Team Members Should Reflect on Their Personal Growth and Learning

Co-design can lead to an increase in team members' growth in skills and knowledge as they engage in self-reflection and shared perspectives on teaching and learning (Kolling et al., 2022; Roschelle & Penuel, 2006). Hoadley and Campos (2022) noted, "More importantly, we see that on top of designs and findings as outcomes, there is the possibility of transforming systems, organizations, and, notably, transforming researchers and participants" (p. 215). Calvo and Sclater (2021), drawing on Freire's (1970) social theories of learning, noted that co-design facilitates informal-mutual learning that "occurs in community engagement settings with non-hierarchical relationships…which nurture a collective power capable of actually solving the actual issues of communities…" (p. 235). As team members contribute their knowledge and skills to a co-design project, they can learn from one another. One team member reflected,

> *The most rewarding parts of this project were collaborating with passionate professionals and multiple specialists to leverage one another's strengths to build a program that could help so many. As I think about my most memorable activities, it's learning from one another that I liked so much.*

To support personal growth and learning, team members can be encouraged to take time to reflect on their experiences and provide feedback to one another. By fostering an environment of open communication, team members can learn to listen to and recognize varied perspectives that may lead to the identification of areas for their improvement. Ward et al. (2018) noted, "Co-design is a labour intensive process and involves real listening to the 'different' perspectives in the room and attempting to understand each person's reality as different but complementary to others" (p. 10).

Environment: The Co-Design Environment Should Foster and Support Collaborative Learning

Navigating through this instructional design project illuminated three environmental aspects that grounded the collaborative design process–support for consensus building, provision of psychological safety, and use of technology for collaboration. These elements contribute to an environment that fosters collaboration in a diverse group of participants with different backgrounds, experiences, and perspectives (Pallesen et al., 2020). Lessons learned relating to each of these aspects are described next.

The Co-Design Environment Should Intentionally Support Consensus Building

Consensus building is an important part of the co-design process as it grounds shared understandings and agreements on project goals, objectives, and outcomes. In co-design, stakeholders are often from different backgrounds, perspectives, and areas of expertise, leading to divergent opinions and conflicting ideas. By engaging in consensus building, stakeholders can work together to identify areas of agreement and disagreement, and

negotiate trade-offs. This process helps to encourage active participation, build trust, and promote buy-in from all parties involved, not just the most vocal or powerful ones. Ultimately, consensus building is crucial for the success of co-design projects because it helps to create a shared vision and commitment among stakeholders, which is essential for implementing and sustaining the project over time.

Strategies used in this project to encourage consensus building include practicing active listening, identifying common ground, being open to compromise, sharing thoughts and feelings openly and honestly, and being mindful of the need to maintain constructive dialogue (McLeskey et al., 2017; Vostal et al., 2021). Similarly, Muller-Schoof et al. (2023) observed in their design case, "A positive atmosphere, as well as personal qualities such as listening and paying attention to others, enabled collaboration and cohesion of the teams" (p. 15). These techniques can be further promoted through modeling by project leads during meetings and through team member recognition efforts.

The Co-Design Environment Should Provide Psychological Safety

The co-design environment should provide techniques that value collaboration, openness, respect, and empowerment to promote psychological safety. Psychological safety is "the shared belief that it is safe to engage in interpersonal risk-taking in the workplace" (Hunt et al., 2021, para. 1). Psychological safety is vital to team learning and performance, as it facilitates willingness for team members to contribute towards shared goals. Psychological safety is crucial in co-design because it creates an inclusive environment where all participants feel comfortable sharing their thoughts, ideas, and perspectives without fear of judgment. One team member said,

> *I think you have to build trust and learn to lean on one another. Take time to get to know one another. We're in this together. I think that's huge–just the relationship-building aspect. We got to laugh, and we cared about the work and about one another and making sure that this was a quality product that could really help a lot of people. So, that's what I enjoyed.*

When participants feel safe to express themselves, more diverse and inclusive ideas and perspectives are welcomed, which can lead to more effective and innovative products. Team members must be encouraged to express their thoughts and ideas openly in a safe and supportive environment (Hunt et al., 2021; Jackson-Barrett et al., 2019). Project leads can create opportunities for feedback from the team and encourage communication skills (Harrison et al., 2022).

The Co-Design Environment Should Leverage Technology to Facilitate Collaboration

Technology played a significant role in the VBC project co-design environment, as varied tools and platforms were leveraged to facilitate collaboration, communication, and

information exchange among team members. With the rise of remote work and distributed teams, technology can be leveraged to overcome geographical barriers. In 2010, Sanders et al. suggested that the ability to use online tools and techniques for the entire co-design process was “a distant possibility” (p. 197). Such a possibility became reality in this project with online technologies supporting all stages of the co-design process, from ideating to prototyping to testing. Digital tools such as screen sharing, collaboration platforms, and design software enabled team members to work together in real-time, exchange feedback and ideas, and build prototypes (Mallakin et al., 2023). Moreover, technology supported the sharing, documentation, and archival of design artifacts, making it easier for team members to access and share information.

Process: The Co-Design Process Should Model and Support Collaboration Among All Members

The co-design process can involve collaborative decision-making and content design. It is also supported through the use of strong facilitators who can guide teams through the process while modeling collective leadership. By demonstrating the value of collaboration, co-design team members can inspire others to collaborate more effectively.

The Co-Design Process Should Support Collaborative Decision-Making

The co-design team navigated design decisions collectively during course development. For example, the team discussed how the content would be communicated to learners throughout the courses. Since the intended audience for the MOOCs was very broad, it was prioritized in this project that specialized terminology and jargon should be avoided as much as possible. One core team member shared,

> *We kept expanding the learners because just about anybody who's a consumer of healthcare could benefit from understanding the history of healthcare and why there are different systems. So, I think that that was significant to think about how broad our audience was.*

Thus, course content needed to be written such that prior knowledge of VBC would not be required. Often the co-design team had to simplify technical information from SMEs and explain complex topics for learners who would likely have minimal prior VBC familiarity. The team created resources that defined terms to ensure that all learners would have access to the foundational vocabulary for each course. Additionally, a historical timeline of insurance was created to show the major events that have influenced current practices. Annotated lists of additional web links where learners could explore deeper on various topics were also developed.

The Co-Design Process Should Support Collaborative Content Design

Team member levels of prior VBC knowledge varied greatly, with some having no prior knowledge and others with extensive experience managing VBC processes and payment models. The core team found that they needed to intentionally structure meetings and discussions for all stakeholders to be able to take part in the design process and provide feedback. The core team and learning designer also worked extensively with SMEs to collaboratively construct the content for the courses, utilizing the PTDs to support input from multiple people that would be used to inform content development.

The Co-Design Process Should Be Guided by Leaders Who Can Provide Clear Direction and Establish Goals

In co-design, the leaders and project managers structure, organize, and guide the project, ensuring that it progresses smoothly and achieves its goals. In addition to overseeing and facilitating the design process, project managers can help to set and manage expectations for all stakeholders so that everyone understands what is expected of them and what they can expect from the project (Kolling et al., 2022; Mallakin et al., 2023). They ensure that all team members are on the same page, information is shared effectively, and the project stays on track and within budget. Project leaders can offer a broader vision, detect challenges, and find solutions when challenges arise. Ward et al. (2018) noted, “It takes a lot of time to prepare and facilitate sessions and requires facilitators to always have the bigger picture in mind” (p. 10). Project leaders should also model a collective leadership approach, enabling team members to fully contribute to the design as co-creators (Pallesen et al., 2020). In designing the VBC courses, this was accomplished by the continuous use of feedback throughout the process that allowed all team members to participate in content design and development.

Reflections on the Co-Design Process and Partnership

In this design case, the co-design process was supported through intentional steps taken by team members from both organizations to establish a shared vision, work constructively to collaboratively navigate the design process, and engage stakeholders in all stages of the project from concept to creation. The industry-academic partnership leveraged the strengths of both organizations to support the creation of instructional content that was novel, authentic, robust, and applicable to a wide range of target learners in healthcare settings. Humana provided domain knowledge, resources, and varied examples in practice, and the UH team applied pedagogical strategies and instructional planning insights to cultivate the content into clear, modular, and engaging online, on-demand courses. Working together, the team was able to provide learners with knowledge about Value-Based Care as well as its implementation in healthcare workplaces, thus increasing its relevance and likelihood of

adoption (Morris et al., 2022; Theobald et al., 2021). In reflecting upon the experience of this partnership, team members identified the relationships built during the co-design project to be integral to its success, as they not only made the project more enjoyable for those involved but also facilitated the communication and psychological safety needed to support the iterative cycles of feedback during course development. The forming of relationships is essential to establishing trust in the team, as Zelenko et al. (2021) explain:

> *… university–industry partnerships would benefit from framing as relationships, in which the development of trust might form the basis for achieving successful outcomes and impact. A relationship implies something deeper than merely collaboration; it suggests a meaningful connection between parties that might not be created immediately but rather fostered over a length of time. (p. 3)*

The relationships are nurtured by three significant factors. First, a supportive co-design process facilitates and sustains equitable sharing of knowledge and other contributions from stakeholders through the project timeframe (Theobald et al., 2021). In our case, the project seemed to be much smaller when it was initially proposed, but it grew in scope as the team was fully formed and the project plan drafted. The co-design approach necessitated that representatives from both organizations be involved in the project conceptualization. Contrasted with a client-ID consultant-type relationship, the co-design partnership involves the integration of expertise from both sides of the partnership. By having the industry and academic team members at the table from the beginning, aspects such as clinical content, context, and teaching approaches could be discussed and negotiated, which Henderson and Creedy (2008, as cited in Theobald et al., 2021) contend contribute to high-quality learning experiences for students.

In the first two phases of development, the collaborative team processes, including the project plan spreadsheet, resource spreadsheet, and process thinking documents, enabled the growing team to onboard new members, stay up to date on project progress, and understand their individual roles and tasks. Conducting this project during the time of a pandemic and with a geographically distributed team presented some challenges; however, team members from both organizations had previous extensive experiences collaborating virtually, a factor that Sjöö and Hellström (2019) noted positively influences subsequent collaborations.

In reflecting on the co-design approach of this project, lessons for creating stronger design systems for collaboration centered on aspects of the team, the environment, and the process. First, team members' selection and support are essential to project success. Second, it is important to recognize elements in the co-design environment, such as psychological safety and communication technologies, that help to sustain the collaborations among team members with such diverse backgrounds, experiences, and perspectives. Finally, the co-design process models and maintains collaboration among team members through shared decision-making, content design, and project management leadership. These lessons serve as starting points for organizations and practitioners interested in engaging in co-design.

Approaching an instructional design project with a co-design framework introduces inherent complexities associated with convening a diverse team to engage in shared decision-making

and productive content development. However, the lessons from this design case about team, environment, and process offer insights into the skills, resources, and practices that are needed to support effective co-design experiences. Relationship-building within the team serves as the foundation upon which the collaborative processes can function. For the VBC project, these relationships were a key outcome of the co-design structure, providing continued engagement between the organizations for potential future industry-academic initiatives.

References

Abrams, K., Korba, C., Shah, U., & Elsner, N. (2020, July 9). *How the virtual health landscape is shifting in a rapidly changing world: Findings from the Deloitte 2020 Survey of US Physicians*. Deloitte Insights. https://www2.deloitte.com/us/en/insights/industry/health-care/physician-survey.html

Adamski, M., Truby, H., Bennett, C., & Gibson, S. (2022). Exploring impacts of a nutrition-focused massive open online course. *Nutrients, 14*(18), Article 3680. https://doi.org/10.3390/nu14183680

Álvarez-Pérez, Y., Perestelo-Pérez, L., Rivero-Santanta, A.; Torres-Castaño, A., Toledo-Chávarri, A., Duarte-Díaz, A., Mahtani-Chugani, V., Marrero-Díaz, M.D., Montanari, A., Tangerini, S., et al. (2022). Co-creation of massive open online courses to improve digital health literacy in pregnant and lactating women. *International Journal of Environmental Research and Public Health, 19*, Article 913. https://doi.org/10.3390/ijerph19020913

Anderson, G., & Meiselbach, M. (2023). Why are some value-based programs successful? *JAMA Network Open, 6*(3), Article e234412. https://doi.org/10.1001/jamanetworkopen.2023.4412

Anderson, V., Gifford, J., & Wildman, J. (2020) An evaluation of social learning and learner outcomes in a massive open online course (MOOC): A healthcare sector case study. *Human Resource Development International, 23*(3), 208-237. https://doi.org/10.1080/13678868.2020.1721982

Agrawal, R., Gupta, A., & Fendrick, A. (2018). Value-based insurance design improves medication adherence without an increase in total health care spending. *Health Affairs, 37*(7), 1057-1064. https://doi.org/10.1377/hlthaff.2017.1633

Australian Healthcare and Hospitals Association. (2017). *Experience-based co-design toolkit.* Available at: https://ahha.asn.au/experience-based-co-design-toolkit.

Bird, M., McGillion, M., Chambers, E.M. et al. (2021). A generative co-design framework for healthcare innovation: Development and application of an end-user engagement framework. *Research Involvement and Engagement, 7*(12), 1-12. https://doi.org/10.1186/s40900-021-00252-7

Blackwell, W., Lowton, K., Robert, G., Grudzen, C., & Grocott, P. (2017). Using experience-based co-design with older patients, their families and staff to improve palliative care experiences in the emergency department: A reflective critique on the process and outcomes. *International Journal of Nursing Studies, 68*, 83–94. https://doi.org/10.1016/j.ijnurstu.2017.01.002

Bolster, E. A. M., van Gessel, C., Welten, M., Hermsen, S., van der Lugt, R., Kotte, E., van Essen, A., & Bloemen, M. A. T. (2021). Using a co-design approach to create tools to facilitate physical activity in children with physical disabilities. *Frontiers in Rehabilitation Sciences, 2,* Article 707612. https://doi.org/10.3389/fresc.2021.707612

Calvo, M., & Sclater, M. (2021). Creating spaces for collaboration in community co-design. *International Journal of Art & Design Education (iJADE), 40*(1), 232-250. https://doi.org/10.1111/jade.12349

Cavignaux-Bros, D. & Cristol, D. (2020). Participatory design and co-design—The case of a MOOC on public innovation. In M. Schmidt, A. A. Tawfik, I. Jahnke, & Y. Earnshaw (Eds.), *Learner and user experience research: An introduction for the field of learning design & technology*. EdTech Books. https://edtechbooks.org/ux/participatory_and_co_design

Centers for Medicare & Medicaid Services. (2023). *Strategic direction*. https://innovation.cms.gov/strategic-direction

Cinquin, P., Guitton, P., & Sauzéon, H. (2021). Designing accessible MOOCs to expand educational opportunities for persons with cognitive impairments. *Behaviour & Information Technology, 40*(11), 1101-1119. https://doi.org/10.1080/0144929X.2020.1742381

Coursera. (2023a). *Coursera for campus*. Retrieved from https://www.coursera.org/campus

Coursera. (2023b). *Healthcare courses*. Retrieved from https://www.coursera.org/search?query=healthcare

Eccleston, C., Doherty, K., Bindoff, A., Robinson, A., Vickers, J., McInerney, F., 2019. Building dementia knowledge globally through the understanding dementia massive open online course (MOOC). *npj Science of Learning, 4*, Article 3. https://doi.org/10.1038/s41539-019-0042-4

Eglseer, D. (2023). Development and evaluation of a Massive Open Online Course (MOOC) for healthcare professionals on malnutrition in older adults. *Nurse Education Today, 123*, Article 105741. https://doi.org/10.1016/j.nedt.2023.105741

El Ali, M., Leathwick, S., Jacob, A., & Jacob, E. (2023). In partnership: A just-in-time MOOC to support continuing professional development during a pandemic. *Science Talks*, *6*, Article 100198. https://doi.org/10.1016/j.sctalk.2023.100198

Farmer, T. (2021). *Using co-design to create K-12 online and hybrid learning resources*. [Doctoral Dissertation, Purdue University].

https://hammer.purdue.edu/articles/thesis/Utilizing_Codesign_to_Create_K-12_Online_and_Hybrid_Learning_Resources/17348540

Freer, E. (2023, May). *Learning through a value lens: Texas medical students learn Value-Based Care tenets*. Texas Medicine. Texas Medical Association. https://www.texmed.org/Template.aspx?id=61907

Freire, P. (1970). *Pedagogy of the oppressed.* Continuum.

Gleason, K., Commodore-Mensah, Y., Wu, A., Kearns, R., Pronovost, P., Aboumatar, H., & Dennison Himmelfarb, C. (2021). Massive open online course (MOOC) learning builds capacity and improves competence for patient safety among global learners: A prospective cohort study. *Nurse Education Today, 104*, Article 104984. https://doi.org/10.1016/j.nedt.2021.104984

Gómez Gómez, F., & Munuera Gómez, P. (2021). Use of MOOCs in health care training: A dDescriptive-exploratory case study in the setting of the COVID-19 pandemic. *Sustainability, 13*(19), Article 10657. https://doi.org/10.3390/su131910657

Harrison, R., Chin, M., & Ni She, E. (2022) What does co-design mean for Australia's diverse clinical workforce? *Australian Health Review, 46*(1), 60-61. https://doi.org/10.1071/AH21116

Henderson, A., & Creedy, D. (2008). *Leading engagement of academic and clinical communities for learning*. Australian Learning and Teaching Council.

Hoadley, C., & Campos, F. (2022) Design-based research: What it is and why it matters to studying online learning. *Educational Psychologist, 57*(3), 207-220. https://doi.org/10.1080/00461520.2022.2079128

Howard, C. (2011). Writing and rewriting the instructional design case: A view from two sides. *International Journal of Designs for Learning, 2*(1), 40-55.

Hunt, D.F., Bailey, J., Lennox, B.R., Crofts, M., & Vincent, C. (2021). Enhancing psychological safety in mental health services. *International Journal of Mental Health Systems, 15*, Article 33. https://doi.org/10.1186/s13033-021-00439-1

Iniesto, F., Charitonos, K. & Littlejohn, A. (2022). A review of research with co-design methods in health education. *Open Education Studies, 4*(1), 273-295. https://doi.org/10.1515/edu-2022-0017

Jackson-Barrett, E. M., Gower, G., Price, A. E., & Herrington, J. (2019). Skilling up: Providing educational opportunities for Aboriginal education workers through technology-based pedagogy. *Australian Journal of Teacher Education, 44*(1), Article 4. Retrieved from https://ro.ecu.edu.au/ajte/vol44/iss1/4

Kennedy, E., & Laurillard, D. (2019). The potential of MOOCs for large-scale teacher professional development in contexts of mass displacement. *London Review of Education, 17*(2), 141–158. https://doi.org/10.18546/LRE.17.2.04

Kennedy, E., Moghli, M. A., Chase, E., Pherali, T., & Laurillard, D. (2019). *A co-design methodology for blended teacher professional development in contexts of mass displacement.* NORRAG SPECIAL ISSUE 02: Data collection and evidence building to support education in emergencies, 2019. Retrieved from https://discovery.ucl.ac.uk/id/eprint/10074742

Kolling, A., Weinberger, A., Batangan, D., Saad, A., & Wan, TC. (2019). *Using co-design to create MOOCs for Southeast Asian audiences.* [paper presentation]. ASEM Education in a Digital World: Bridging the Continents - Connecting the People Conference, Cologne, Germany. https://doi.org/10.22028/D291-37033

Kolling, A., Weinberger, A., & Niegemann, H. (2022). Co-designing MOOCs with CoDe-Graph. *Journal of Formative Design in Learning, 6*, 25-39. https://doi.org/10.1007/s41686-022-00064-2

Maciver, D., Hunter, C., Johnston, L., Forsyth, K. (2021). Using stakeholder involvement, expert knowledge and naturalistic implementation to co-design a complex intervention to support children's inclusion and participation in schools: The CIRCLE framework. *Children, 8*(3), Article 217. https://doi.org/10.3390/children8030217

Mallakin, M., Dery, C., Vaillancourt, S., Gupta, S., & Sellen, K. (2023). Web-Based co-design in health care: Considerations for renewed participation. *Interactive Journal of Medical Research, 12*, Article e36765. https://doi.org/10.2196/36765

Masterson, D., Areskoug Josefsson, K., Robert, G., Nylander, E., & Kjellström, S. (2022). Mapping definitions of co-production and co-design in health and social care: A systematic scoping review providing lessons for the future. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy, 25*(3), 902–913. https://doi.org/10.1111/hex.13470

Maxwell, W., Fabel, P., Diaz, V., Walkow, J., Kwiek, N., Kanchanaraksa, S., Wamsley, M., Chen, A., & Bookstaver, P. (2018). Massive open online courses in U.S. healthcare education: Practical considerations and lessons learned from implementation. *Currents in Pharmacy Teaching and Learning, 10*(6), 736-743. https://doi.org/10.1016/j.cptl.2018.03.013

McGregor, D., Rohne, I., Solman, A., Shaw, T., Yeung,W., Jones, A., Herring,A., Sukovic, S., Culver,A., Shrapnel, J., &Linehan, T. (2018). Curriculum resource co-design and development for a digital health workforce and digital health ready graduates. *Health Education in Practice: Journal of Research for Professional Learning, 1*(2), 7-14. https://openjournals.library.sydney.edu.au/index.php/HEP/article/view/13054

McLeskey, J., Barringer, M.-D., Billingsley, B., Brownell, M., Jackson, D., Kennedy, M., et al. (2017). *High-leverage practices in special education.* Council for Exceptional Children & CEEDAR. Retrieved from https://ceedar.education.ufl.edu/hlps/

Minichiello, A., & Caldwell, L. (2021). A narrative review of design-based research in engineering education: Opportunities and challenges. *Studies in Engineering Education, 1*(2), 31–54. https://doi.org/10.21061/see.15

Morris, I., O'Sullivan, K., Fitzgerald, N.P., Walsh, J., Boyle, F., O'Connell, E., & Corkery, G. (2022). Co-design and co-development of an overarching work placement framework with industry. *INTED 2022 Proceedings*, 1046-1053. https://doi.gov/10.21125/inted.2022.0326

Muller-Schoof, I. J. M., Verbiest, M. E. A., Snoeren, M., & Luijkx, K. G. (2023). Lessons learned from co-designing educational programs for student and practicing healthcare professionals in nursing homes: A participatory qualitative study. *Journal of Participatory Research Methods, 4*(1), 1-24. https://doi.org/10.35844/001c.57529

Nakanjako, D., Kendall, D., Sewankambo, N. K., Razak, M. H., Oduor, B., Odero, T., Garcia, P., & Farquhar, C. (2021). Building and sustaining effective partnerships for training the next generation of global health leaders. *Annals of Global Health, 87*(1), Article 66. https://doi.org/10.5334/aogh.3214

New England Journal of Medicine (NEJM). (2017). *What is Value-Based Care?* NEJM Catalyst. https://catalyst.nejm.org/doi/full/10.1056/CAT.17.0558

Nieder, J., Schwerdtle, P., Sauerborn, R., & Barteit, S. (2022). Massive Open Online Courses for health worker education in low- and middle-income countries: A scoping review. *Frontiers in Public Health, 10, Article 891987*. https://doi.org/10.3389/fpubh.2022.891987

Noël, F. (2022). Accelerating the pace of value-based transformation for more resilient and sustainable healthcare. *Future Healthcare Journal, 9*(3), 226-229. https://doi.org/10.7861/fhj.2022-0118

O'Brien, J., Fossey, E., & Palmer, V. J. (2021). A scoping review of the use of co-design methods with culturally and linguistically diverse communities to improve or adapt mental health services. *Health & Social Care in the Community, 29*(1), 1-17. https://doi.org/10.1111/hsc.13105

Ohag, M., Nawawi, A. H., Muhammad, F., & Hashim, N. (2023). Critical coordination factors affecting design and build projects: A comprehensive review of the literature. *International Journal of Environment, Architecture, and Societies, 3*(1), 59-71. https://doi.org/10.26418/ijeas.2023.3.01.59-71

Pallesen, K., Rogers, L., Anjara, S., De Brún, A., & McAuliffe, E. (2020). A qualitative evaluation of participants' experiences of using co-design to develop a collective leadership educational intervention for health-care teams. *Health Expectations, 23*(2), 358-367. https://doi.org/10.1111/hex.13002

Palomo-Carrión, R., De Araújo Ferreira Jesus, C. C., Santana, C. A. S., Lindquist, R., Alencar, R., Romay-Barrero, H., Contell-Gonzalo, E., Monteiro, K. S., Pinero-Pinto, E., & Longo, E. (2022). Co-design of an intervention to increase the participation in leisure activities including adolescents with cerebral palsy with GMFCS Levels IV and V: A study protocol. *Journal of Clinical Medicine, 12*(1), Article 182. https://doi.org/10.3390/jcm12010182

Penuel, W. R., Roschelle, J., & Shechtman, N. (2007). Designing formative assessment software with teachers: An analysis of the co-design process. *Technology Enhanced Learning, 2*(1), 51–74. https://doi.org/10.1142/S1793206807000300

Penuel, W., Fishman, B., Haugan Cheng, B., & Sabelli, N. (2011) Organizing research and development at the intersection of learning, implementation, and design. *Educational Researcher, 40*(7), 331–337. https://doi.org/10.3102/0013189X11421826

Perestelo-Perez, L., Torres-Castaño, A., González-González, C., Alvarez-Perez, Y., Toledo-Chavarri, A., Wagner, A., Perello, M., Van Der Broucke, S., Díaz-Meneses, G., Piccini, B., Rivero-Santana, A., Serrano-Aguilar, P., & on behalf of the IC Project Consortium. IC-Health Project: Development of MOOCs to promote digital health literacy: First results and future challenges. *Sustainability, 12*(16), Article 6642. https://doi.org/10.3390/su12166642

Redman, S., Greenhalgh, T., Adedokun, L., Staniszewska, S., & Denegri, S. (2021). Co-production of knowledge: The future. *BMJ, 372*(434), 1-2. https://doi.org/10.1136/bmj.n434

Robert, G., Cornwell, J., Locock, L., Purushotham, A., Sturmey, G., & Gager, M. (2015). Patients and staff as codesigners of healthcare services. *BMJ*, *350*, Article 7714. https://doi.org/10.1136/bmj.g7714

Roschelle, J., & Penuel, W. R., (2006). Co-design of innovations with teachers: Definition and dynamics. *Proceedings of the 7th International Conference on Learning Sciences*, 606–612.

Rutherford, B., Brockman, M., Hunt, S., Helton, J., & Schmidt, R. N. (2022). Transitions from a fee-for-service (FFS) payment model: Evolutionary triple to quadruple aim transformation, value-based care and decreased provider burnout. *Journal of Business and Educational Leadership, 12*(1), 97-109.

Sanders, E., & Stappers, P. J. (2008). Co-creation and the new landscapes of design. *Codesign, 4*(1), 5–18. https://doi.org/10.1080/15710880701875068

Sanders, E., & Stappers, P. J. (2012). *Convivial toolbox: Generative research for the front end of design.* Bis Publishers.

Sanders, E., Brandt, E., & Binder, T. (2010). *A framework for organizing the tools and techniques of participatory design. In Proceedings of the 11th Biennial Participatory Design Conference.* Presented at PDC '10: The 11th Biennial Participatory Design Conference; Nov 29 - Dec 3, 2010; Sydney, Australia. https://doi.org/10.1145/1900441.1900476

Shah, D. (2020). *Capturing the hype: Year of the MOOC timeline explained.* Class Central. https://www.classcentral.com/report/mooc-hype-year-1/

Shah, D. (2021). *A decade of MOOCs: A review of MOOC stats and trends in 2021*. Class Central. https://www.classcentral.com/report/moocs-stats-and-trends-2021/

Shah, D. (2023). *2022 Year in Review: The "New Normal" that Wasn't*. Class Central. https://www.classcentral.com/report/2022-year-in-review/

Shrank, W., & Powers, B. (2022). Payers and providers seek value-based care, but progress is slow. *NEJM Catalyst Innovations in Care Delivery, 3*(5). https://doi.org/10.1056/CAT.22.0122

Sjöö, K., Hellström, T. (2019). University-industry collaboration: A literature review and synthesis. *Industry & Higher Education, 33*(4), 275-285. http://dx.doi.org/10.1177/0950422219829697

Slattery, P., Saeri, A. K., & Bragge, P. (2020). Research co-design in health: A rapid overview of reviews. *Health Research Policy and Systems, 18*(1), 1-13. https://doi.org/10.1186/s12961-020-0528-9

Steen, M., Manschot. M., & De Koning, N. (2011). Benefits of co-design in service design projects. *International Journal of Design, 5*(2), 53-60. https://www.ijdesign.org/index.php/IJDesign/article/view/890

Teisberg, E., Wallace, S., & O'Hara, S. (2020). Defining and implementing value-based health care: A strategic framework. *Academic Medicine: Journal of the Association of American Medical Colleges, 95*(5), 682–685. https://doi.org/10.1097/ACM.0000000000003122

Torrents, C., Balagué, N., Hristovski, R., Almarcha, M., & Kelso, J. (2021). Metastable coordination dynamics of collaborative creativity in educational settings. *Sustainability, 13*(5), Article 2696. https://doi.org/10.3390/su13052696

Vostal, B., Mrachko, A., Vostal. M., & McCoy, A. (2021). Effects of group behavioral skills training on teacher candidates' acquisition and maintenance of active listening. *Journal of Behavioral Education, 31*, 679-698. https://doi.org/10.1007/s10864-021-09431-8

Walsh, A., Harrington, D., & Hines, P. (2020). Are hospital managers ready for value-based healthcare? A review of the management competence literature. *International Journal of Organizational Analysis, 28*(1), 49-65. https://doi.org/10.1108/IJOA-01-2019-1639

Ward, M. E., De Brún, A., Beirne, D., Conway, C., Cunningham, U., English, A., Fitzsimons, J., Furlong, E., Kane, Y., Kelly, A., McDonnell, S., McGinley, S., Monaghan, B., Myler, A., Nolan, E., O'Donovan, R., O'Shea, M., Shuhaiber, A., & McAuliffe, E. (2018). Using co-design to develop a collective leadership intervention for healthcare teams to improve safety culture. *International Journal of Environmental Research and Public Health, 15*(6), Article 1182. https://doi.org/10.3390/ijerph15061182

Zelenko, O., Gomez, R., & Kelly, N. (2021). Research co-design: Meaningful collaboration in research. In A. Blackler & E. Miller (Eds.), *How to be a design academic: From learning to leading (pp. 227-243)*. CRC Press.

Zhang, H., & Cowling, D. (2023). Association of participation in a value-based insurance design program with health care spending and utilization. *JAMA Network Open, 6*(3), Article e232666. https://doi.org/10.1001/jamanetworkopen.2023.2666

Co-Designing an Action-Oriented Instructional Design Community: Applying the Design Justice Network Principles to Shape and Inform Our Collaborative Practices

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Co-Design | Collaboration | Design Justice | Instructional Design | Professional Learning | Social Justice

In this paper, we share our process and learnings from growing the Instructional Design Working Group of the Design Justice Network, a group of instructional design professionals interested in understanding and applying critical, ethical, and socially-just approaches to instructional design. Following a brief review of the literature on approaches to ID collaboration and professional growth, and an introduction to the DJN Principles (DJN, 2018) that guided our work, we will weave stories of significant moments that highlight our use of design justice and co-design strategies to

intentionally design and grow the community,
highlight lessons learned, and reflect on the future.

Introduction

In the summer of 2022, a small but diverse group of readers gathered virtually to discuss the introductory chapter to Design Justice: Community-Led Practices to Build the World We Need (Costanza-Chock, 2020). This was the first foray in a collaborative effort among a group of instructional design professionals to co-create a community of practitioners interested in understanding and applying critical, ethical, and socially-just approaches to instructional design. This community, the Instructional Design Working Group of the Design Justice Network (DJN-IDs), explores how the Design Justice Network Principles (DJN, 2018) can guide our work toward more inclusive and equitable design outcomes.

This group is distinct among instructional design (ID) professional communities in its adherence to a set of justice-oriented principles. Instructional designers (IDs) need opportunities to engage with critical approaches to their work to understand student experiences that may be vastly different from their own. Such approaches are typically eschewed in traditional graduate programs that train future IDs; for example, Yusop and Correia (2012) found many graduate programs emphasize "training-for-the-job" in their curricula at the cost of what the authors termed "civic professionalism" (p. 182). Critical and justice-oriented approaches are also under-explored in ID-related professional organizations. Some organizations have mission statements oriented toward doing good, with statements such as "uncommon thinking for the common good" (EDUCAUSE, n.d.); "create a world that works better" (ATD, n.d.); or "add value for your clients, their customers, and the global environment" (ISPI, n.d.). Other organizations may have a list of values that drive their practice, but concepts around justice are entirely absent (e.g., AECT, n.d.).

Designing with a focus on good intentions to solve problems, albeit common as a practice, is a design pattern likely to forgo ethical decision-making unless ethical considerations are foregrounded (Chivukula & Gray, 2020). The Design Justice Principles offer concrete guidance for practice that moves beyond design with good intentions, to "design using just and open processes for just and sustainable outcomes" (DJN, n.d.-b). Inspired by these principles, our group of ID professionals sought to center design justice in our how, or approach to nurturing the community; our what, or professional networking context and activities; and our why, or purpose for developing the group.

This paper will share our process and learnings from growing the DJN-IDs group. We will set the stage with a brief review of the literature on approaches to ID collaboration and professional growth and introduce the DJN Principles (DJN, 2018). Subsequently, we will weave stories of significant moments that highlight our use of co-design strategies to intentionally design and grow the community. Finally, we will elaborate on learnings from this collaborative process and reflect on where we envision its future.

Instructional Designer Collaboration and Professional Growth

Collaboration is seen as a key aspect of ID work and professional growth. Research on collaboration in ID has primarily focused on the relationship between IDs and subject matter experts (SMEs), given the importance of this relationship to successful course design outcomes. For example, Chao et al. (2010) examined the helpfulness of using online course quality guidelines to support designer and faculty collaborations, finding that such guidelines were most helpful for newer faculty. They noted the importance of rapport building early in the process, and creating a shared understanding of the priorities and process for the collaboration. Chen and Carliner (2020) described a variety of relationships that can frame course development projects, with instructional designers acting "as consultations, as customer services, as collaborations, as administrative endeavors, and as change agents" (p. 480). Moving beyond roles, Bawa and Watson's (2017) work focused on identifying the essential characteristics of a successful collaboration among stakeholders in an ID project: communication, humility, adaptability, mentorship, empathy, looping, engagement, oscillation, and networking. Indeed, Pollard and Kumar's (2022) literature review of instructional designer roles in higher education found that "managing and brokering successful interpersonal collaboration with SMEs" is a central characteristic of ID work (para. 15).

In most cases, ID collaboration outside of the course development process takes place within the framework of formalized coaching, mentoring, and apprenticeship models for newly hired IDs within organizations. Once an ID has been hired, whether they have come through a graduate ID program or via an alternative path, onboarding, and ongoing professional learning are needed to support ID success. As Mancilla and Frey (2020) point out, "there is no systematic method for preparing new IDs to become experts in their profession once they are employed in academic settings" (para. 3). As such, workplaces often depend on expert IDs to train their newer colleagues on the expectations of the ID processes and practices for their workplace. For example, Stefaniak (2017) points to coaching as an approach that allows for expert instructional designers to onboard new instructional designers into the profession, providing them with on-the-job professional development by emphasizing "coach-coachee relationships, problem solving, goal setting, and situational awareness" (p. 27).

The literature also contains examples of collaboration between ID educators, with the goal of strengthening instructional design pedagogy as well as their own instructional design practice. For example, Brown et al. (2013) described a collaboration between IDs to redesign an online graduate course for which they were also instructors; they found that the collaboration resulted in a "stronger course design" (p. 446), "pedagogical and social support" (p. 446), and "strengthened professional relationships and pedagogical expertise that developed and endured beyond the duration of the course" (p. 447). Slagter van Tryon, McDonald, and Hirumi (2018) shared their collaboration aimed at improving ID education, which resulted in proposing an experiential learning model to use as a pedagogical approach in their courses. These collaborations resonate more closely with ours, given that they occurred outside of the context of onboarding and ongoing ID professional development.

Our literature review describes ways in which collaboration shows up in ID work and highlights a gap in collaboration between IDs working in the same institution or across institutional contexts. A small segment of the literature on ID collaboration suggests that collaboration between IDs provides an essential avenue for professional growth. Collaborations between IDs take many forms, including within professional organizations created by and for IDs as opportunities for networking, advice, and support (e.g., UPCEA Uplift, ID2ID, Pedagome). In some cases, as Romero-Hall (2022, p. 210) describes, collaboration begins during graduate school and extends into continuing professional development as graduates move into instructional design roles.

Noting the limited opportunities for ID collaboration within and across institutional contexts, our DJN-IDs group was formed with the purpose of creating space for such collaboration. Whereas ID collaborations described in the literature above were focused on a learning product (a course), our group's collaboration was relational, exploratory, and inspired by a lack of opportunities to collaborate on justice-oriented instructional design practices. In the spirit of Pollard and Kumar's (2022) positioning of IDs as "reflective practitioners" who "generate their own support for the varieties of challenges they face" (p. 7), we sought to co-design a collaborative learning community to both support our own learning and practice around design justice, as well as to support other IDs who seek to be change agents in their work. We view a design justice approach as central to "discussions concerning technology-enhanced learning initiatives and challenging the pedagogical status quo" (McDonald & Mayes, 2007; Schwier et al., 2004, as cited in Pollard & Kumar, 2022, p. 5). Below, we describe the design justice framework in more detail, before sharing how we applied the framework to our collaboration.

The Design Justice Network and Principles

The DJN Principles prioritize attention to the distribution of harms and benefits in designs, center users in the design process, and foreground the lived experiences of folks who are typically marginalized by designs. These principles were formulated after a call to action stemming from conversations at the Allied Media Conference. In 2014 and 2015, designers Nina Bianchi, Una Lee, Andy Gunn, Victoria Barnett, and Ben Leon led the Design Futures Labs participants to "generate shared principles for design justice" (DJN, n.d.-b). The work of 30 or more designers, activists, artists, and technologists helped to form the principles with the goal of using common ideas and language to support designers when working with marginalized communities and reducing harm in design. At the time of the publication of Design Justice (Costanza-Chock, 2020), around 300 people and organizations had signed on or adopted the principles. As of this writing, almost 3,000 have signed on as adopters of the principles (DJN, 2022).

The DJN Principles (DJN, 2018) are as follows:

- Principle 1: We use design to sustain, heal, and empower our communities, as well as to seek liberation from exploitative and oppressive systems.

- Principle 2: We center the voices of those who are directly impacted by the outcomes of the design process.
- Principle 3: We prioritize design's impact on the community over the intentions of the designer.
- Principle 4: We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.
- Principle 5: We see the role of the designer as a facilitator rather than an expert.
- Principle 6: We believe that everyone is an expert based on their own lived experience and that we all have unique and brilliant contributions to bring to a design process.
- Principle 7: We share design knowledge and tools with our communities.
- Principle 8: We work towards sustainable, community-led and -controlled outcomes.
- Principle 9: We work towards non-exploitative solutions that reconnect us to the earth and to each other.
- Principle 10: Before seeking new design solutions, we look for what is already working at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices.

Instructional designers may be familiar with Universal Design for Learning (CAST, 2018) and inclusive design as frameworks and strategies for creating learning experiences that take into account a diversity of learner experiences, backgrounds, and abilities. Design justice shares with UDL and inclusive design the goal of reducing barriers to learning, through strategies such as designing for adaptability and flexibility, a focus on accessibility, and design processes that seek to integrate user perspectives.

However, there are some essential differences between UDL, inclusive design, and design justice approaches. Notably, design justice seeks to move beyond reducing barriers to focus on the transformation of the unjust systems from which barriers originate. Design justice asks us to consider: who participated in the design process? Who benefited from the design? Who was harmed by the design? During a design justice process, designers not only invite input from those with lived experience but ideally facilitate a process that is led by the community experiencing the design's harms. In this way, design justice seeks to move from "good to just," from "design with good intentions" to "design using just and open processes for just and sustainable outcomes;" from "hav[ing] empathy with people experiencing the issue" to "listen[ing] to and believ[ing] the people who are most impacted by the issue" (DJN, 2017). In instructional design, design justice practices might include students as partners, the classroom as a community, co-design, and critical pedagogy.

The Design Justice Network (DJN) serves as a home and loosely organized hub for people interested in putting DJN Principles into practice. It is led primarily by volunteer labor with only a few part-time paid positions that help to connect, support, and facilitate collaboration among DJN members via local nodes and working groups. Local nodes provide a place for people located geographically to connect and work collaboratively on initiatives from social engagement activities, to book clubs, to sharing best practices. Working groups focus on a particular topic area. For example, the Principles at Work working group has created opportunities for all in the network to share their stories about applying the principles in their practice. Over the past year, they have collaboratively developed a workshop and zine so peer facilitators can share the language and essence of the principles (DJN, n.d.-a).

In the fall of 2021, several authors of this paper collaborated to launch a new working group of the DJN, which we named the DJN Instructional Design working group (DJN-IDs). The initial goals of the group were to create a space for IDs interested in using design justice approaches to explore critical instructional design and co-designing learning that is equitable, accessible, and just. Early members envisioned that the group might work toward raising awareness about the design justice principles via website/social media; presentations at professional conferences; hosting conversation groups; creating resources such as sample design activities to help designers practice applying the principles; and hosting events for practitioners to share advice and support for putting the principles into action. Below, we discuss our collaborations, and how our work was connected to, and informed by, the DJN Principles.

Inflection Points Emerging From Our Collaboration

Rather than provide a chronological account of the emergence of the DJN ID working group, we focus this section on inflection points in our collaboration that gave us an opportunity to engage with and seek to align our process with the DJN Principles. These inflection points arose prior to the official emergence of the working group, while it was still in the planning and approval stages within the larger Design Justice Network. They are moments identified collectively by the authors during reflective discussions of professional experiences, particularly moments where we felt increased tension between how we wanted to practice and be instructional designers, and the requirements and limitations imposed on us in our professional contexts.

These moments are highlighted here because they are the moments of tension that had the largest influence on the way we designed the collaborative activities of our working group. We use these moments as reminders to help us think and work differently in our goals for justice in design, and they challenged us to shape or reshape our assumptions and our actions as we envisioned the working group. For several of the early members, these inflection points further illuminated the gaps we were seeing in our existing professional networks and professional learning opportunities, and the challenges of aligning a nascent professional network to DJN Principles. Finally, these inflection points highlight moments in which we learned something important about the how, what, and why of developing this group.

Inflection Point: Instructional designers lack professional codes and practices that enable them to view design from a social justice lens and in participatory ways.

> *Principle 2: We center the voices of those who are directly impacted by the outcomes of the design process.*

> *Principle 4: We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.*
>
> *Principle 6: We believe that everyone is an expert based on their own lived experience and that we all have unique and brilliant contributions to bring to a design process.*
> *(DJN, 2018)*

In recent years, some academicians of instructional design practice have looked critically at the ways in which IDs and instructional technologists do their work. Gray and Boling (2016) note,

> *while ethical awareness is a key concern in many engineering, technology, and design disciplines—even an accreditation requirement in many fields—instructional design … has not historically focused their view of practice on ethics, instead relying on a more scientistic view of practice which artificially limits the designer's interaction with the surrounding society through the artifacts and experiences they design. (p. 969)*

That is not to say that there is a shortage of codes and standards by which instructional designers must work to become more competent in their profession. However, a competency—which Richey et al. (2001) have defined as "a knowledge, skill or [ability] that enables one to effectively perform the activities of a given occupation or function to the standards expected in employment" (p. 26)—does not provide designers with a pathway to becoming more justice-centered in their design approaches. Lin (2007) "identified key areas of ethical decision-making on the part of designers, including copyright, learner privacy, accessibility, diversity, conflicts of interest, and professionalism/confidence. Additionally, Smaldino (2008) created an ID course framework focused on ethics, but this does not appear to have affected the field more broadly" (as cited in Gray & Boling, 2016, p. 975). Indeed, a review of several of the more prominent standards and codes of ethics for the field of ID revealed that competencies center on performance, industry knowledge, research, technologies, training, management, evaluation, and results (Martin & Ritzhaupt, 2021). This lack of attention towards ethical decision-making, participatory design practices (like co-design), and more socially just approaches to the work of IDs led several of the early members of DJN-IDs to seek out better models and frameworks to support our ideals, intentions, and practices.

As we designed our working group, DJN Principles became a way to foreground our thinking about how our profession might benefit from incorporating justice into ID work. As the literature review highlights, most IDs in higher education work in a solitary process, interacting mostly with SMEs or faculty members. The course design process rarely, if ever, includes students who have enrolled in the course or will be enrolled in the course. Principles 2 and 6 could significantly improve outcomes and learning experiences if they were incorporated into the design process. In reviewing the principles, we saw how moving away from standardized norms and codes could bring about real change in learning spaces. For example, what questions might we ask ourselves about the impact of our designs and the use of technology? It is not enough for our profession to outline ethical codes, such as AECT's Code of Ethics, that provide no instructive practices or examples of how to approach

these questions (Gray & Boling, 2016). Our profession's unrelenting focus on competencies, efficiency, and effectiveness as measured through scorecards, rubrics, and checklists of standards has left our small group desiring more connection with students and faculty and seeking a better way to engage, evolve, and evaluate learning.

As our group talked about the issues we experienced at our institutions, we shared concerns about the institutional course design and development process. The accelerated pace of work, while necessary to produce and launch several courses in a short timeline, can make a designer feel like a cog in a machine and deprived of opportunities to be collaborative and accountable throughout the process. Adopting Principle 4 might prompt IDs to work collaboratively with teams of faculty and students to be inclusive in our practice and process. Commiserating in the universality of feeling rushed through a development process with little to no time to reflect and build in an evaluative thought process, our group began to examine how the DJN Principles might help us trouble and bring more intentionality to our ID practices.

Inflection point: The dissolution of a well-regarded professional network focused on critical digital pedagogy and instructional design highlighted the importance of focusing on sustained community-led leadership.

> *Principle 1: We use design to sustain, heal, and empower our communities, as well as to seek liberation from exploitative and oppressive systems.*
>
> *Principle 6: We believe that everyone is an expert based on their own lived experience, and that we all have unique and brilliant contributions to bring to a design process.*
>
> *Principle 8: We work towards sustainable, community-led and -controlled outcomes. (DJN, 2018)*

Our early approach to leadership/facilitation of the DJN-IDs working group was shaped by the dissolution of another professional community in which several of the authors had been involved. That professional community had been a catalyst of important work in critical digital pedagogy and instructional design, and it had been a safe harbor for educators and education professionals who wanted to engage with critical ideas. Though the community had served an important purpose for educators and IDs for years, it quickly dissolved when the leadership of the community could no longer lead it. We viewed this as a lesson for our nascent community and, in early conversations about our approach to leadership, we discussed ways to intentionally structure leadership so that the community can thrive even as leadership changes. Guided by Principle 8, we embraced "structured structurelessness" (Spence et al., 2022) which meant providing enough leadership structure for the group to

move forward but not so much structure that it would create an unnecessary and counterproductive hierarchy. This approach to leadership within the community created openings for Singh and Harlap to join as facilitators of the working group and signaled to the community that the community was for them, not for the facilitators.

When the other professional community dissolved, we also observed a polarization among former members of that community, some siding with or critiquing former leaders of the community. At times, the dialogue between those groups became combative and toxic, leading to ad hominem attacks and rifts between members. As we observed what was happening, we discussed how to discourage polarization within our community and encourage an inclusive and supportive community orientation. We agreed that all working group activities should start with outlining community agreements. We borrowed this practice from other DJN nodes and working groups as part of enacting Principle 1. At the start of each book club meeting or visioning session, we reviewed the community agreements and invited additional input from participants on those agreements. During the first series of book club meetings, we revisited those agreements to address emerging interpersonal dynamics that could become toxic to the community.

As we began planning the group's activities in the early days of the working group, we were guided by Principles 6 and 8. This meant decentering our own expertise and centering the expertise and experiences of the community. The practice of co-design, described by McKercher (2020), was central to the enactment of these principles. Through open visioning meetings, we invited community members to co-design outcomes for the working group, such as activities, resources, publications, and leadership models. Both as part of and in addition to open visioning meetings, we designed multiple pathways to participation and self-expression in our book club events through synchronous and asynchronous means, and offered openly available materials from events and meetings as a record of our work and as an invitation to collaborate. Because we centered the diverse forms of participation from our community members, our working group activities welcomed a wide range of community members we had not initially envisioned being served by our community, including IDs working outside of higher education, community organizers, UX designers, and more.

Inflection Point: Navigating the norms of various communities with the Design Justice Network

> *Principle 4: We view change as emergent from an accountable, accessible, and collaborative process, rather than as a point at the end of a process.*
>
> *Principle 7: We share design knowledge and tools with our communities.*
>
> *Principle 10: Before seeking new design solutions, we look for what is already working at the community level. We honor and uplift traditional, indigenous, and local knowledge and practices. (DJN, 2018)*

As a constantly learning and evolving group, we are always critically reflecting on our progress and processes. Early in our group's formation, we experienced a painful setback, causing us to spend a significant amount of time reflecting and holding ourselves accountable. This setback happened as we were figuring out how to structure an online, come-as-you-can book club. We knew we wanted to design for multiple modes of participation, and we wanted to use collaborative technology to engage participants. We also knew that other working groups and nodes had hosted book discussions in the past. Involvement in the DJN is generally collaborative, and in the spirit of sharing and uplifting what is already working (c.f., Principle 7, Principle 10), we as leaders made an assumption that artifacts created for DJN-associated book club activities were readily reusable, as it is common practice in education (e.g., fair use or fair dealing). As we planned our book club, we came across an excellent resource that was thoughtfully laid out using openly available tools to guide collaboration—we incorporated it into our book club materials with citations and gratitude expressed to the groups who worked on them before.

We were checked on these assumptions as another group in the network expressed unhappiness with our use of a resource they had developed. Although we had not intended to cause harm, it was clear that was the impact. As leaders, we immediately sought to repair the harm caused by taking the resource down, apologizing, and reflecting on our own assumptions. This incident allowed us to revisit the principles, reconsider our values, and chart a new path forward with a clarified perspective about what it means to practice design justice (c.f., Principle 4). Within our group, we made visible our commitment to Principle 7 by sharing our newly created book club materials with a CC-BY-NC-SA 4.0 license, and discussed additional ways of providing transparency into our processes through practices such as note-taking on openly-available Google docs. It also opened conversations within the network about how we can all be better at sharing resources and communicating with and across each node and working group.

Discussion

During the last year and a half of co-creating the DJN-IDs working group, we experienced inflection points that emerged from the friction between what we were trying to do as professional IDs and the DJN Principles. These moments challenged us to shape or reshape our assumptions and our actions as we envisioned the working group. Intentionally designing this group, its culture, and its processes through iterative conversations has given us the opportunity to learn to work together while navigating values and tensions, and creating space for shared leadership and decision-making. As we applied DJN Principles to our work, we learned and continue to learn many lessons about working across institutions, with each other, and with a larger international group of individuals.

One learning has been around co-designing shared processes for the working group. Co-design emphasizes opportunities for co-designers to meaningfully participate in the co-design process (McKercher, 2020). The facilitation team comes from diverse institutions, cultures, and locations, making it harder but all the more necessary to intentionally design ways for each team member to meaningfully engage in the work. We adapted to unexpected and expected challenges, including scheduling conflicts and shifting availabilities, and were mindful of when facilitators needed to step up to or step back from the work. For example, in

writing this paper, we employed different strategies, including synchronous and asynchronous work opportunities, to ensure that facilitators with different working styles and in different time zones had the space to co-develop the document to the best of their abilities on their own time.

The co-creation of this working group also deepened our belief that participatory design/co-design is a slow and intentional process. It was sometimes difficult to take the time needed for intentional inclusive design and keep the momentum of the group moving forward. Yet we thought it was important to, as brown (2017) encourages, “move at the speed of trust” (p. 42) and to resist the forward push of urgency as “our potential success lies in doing deep, slow, intentional work” (p. 114). Slow, intentional work requires constant review and reflection to avoid unintentional exclusion and make space for differences. We intentionally designed multiple pathways to participation and self-expression in our events through synchronous and asynchronous opportunities. Learning from our prior experiences with other professional communities, we were conscious of having some structure and leadership but not so much so as to become exclusionary in the process. While we started with certain ideas and goals, we realized the need to be more collaborative and adjust our expectations to be open to the ideas and potential opportunities that others would bring to the DJN-IDs working group. This enabled the group to hold space for deeper and more reflective conversations and learning.

We strived to share our learnings within and outside the group in line with Principle 7 and openly offered resources as a record of our work and as an invitation to collaborate. This included documenting our processes and learnings through publications or other means to share with others who may find them relevant. This process also gives us the opportunity to continually reflect and look back at our journey as we consciously approach a shared future for the working group.

Looking Ahead

Since the DJN-IDs working group is in its infancy, we have focused on creating the structures for participation and on creating a community. Our next steps include delving more fully into specific project work around this topic. After we completed our book club session in the fall of 2022, we hosted a visioning session. We offered both synchronous and asynchronous ways of contributing so that everyone who was invited could participate and shape future projects of the working group. A brief presentation was recorded to share with our asynchronous participants and a virtual whiteboard (Miro) was created, asking people to share their thoughts around two questions: how or what might we be co-creating within this working group in a year?

Several comments focused on engaging students in co-creation and participatory ways of designing learning. There were shared sentiments about addressing the lack of ethics within our profession from a social justice lens. Other ideas included resources to support curriculum design, inspiring examples of applying the principles to ID, and other approaches to supporting people in bringing design justice into their ID work. Participants proposed supporting each other, focusing on advocacy and systemic approaches, seeking wisdom

from non-ID practices, and other ways of learning from other perspectives, disciplines, and contexts.

We look forward to engaging with the ripples that might result from having collaboratively written this article, both in having deepened our connections as a working group and in whomever else might now feel invited into this community of practitioners. We are hopeful that the intentionality and thoughtful provocation will be shaped by a larger community of IDs, joining us in this work, and helping to evolve the current standards and codes limiting us into efficiency and rigid competencies. We need to open the silos in which designers work if we are to build a more robust framework that extends beyond the current views and practices of IDs and engages with those who are directly impacted by the choices of a few. This idea of evolving participatory and liberatory instructional design practices will hopefully emerge from engaging with the DJN Principles.

References

Association for Educational Communications & Technology [AECT]. (n.d.). About us. https://www.aect.org/about_us.php.

Association for Talent Development [ATD]. (n.d.). *About us*. https://www.td.org/about.

Bawa, P., & Watson, S. (2017). The chameleon characteristics: A phenomenological study of instructional designer, faculty, and administrator perceptions of collaborative instructional design environments. *Qualitative Report, 22*(9), 2334–2355.

brown, a. m. (2017). *Emergent strategy: Shaping change, changing worlds*. AK Press.

Brown, B., Eaton, S., Jacobsen, D., Roy, S., & Friesen, S. (2013). Instructional Design Collaboration: A Professional Learning and Growth Experience. *Journal of Online Learning and Teaching, 9*(3), 439. https://doi.org/10.11575/PRISM/34910

CAST. (2018). *Universal Design for Learning Guidelines version 2.2*. http://udlguidelines.cast.org

Chao, I. T., Saj, T., & Hamilton, D. (2010). Using collaborative course development to achieve online course quality standards. *International Review of Research in Open and Distributed Learning, 11*(3), 106–126. https://doaj.org/article/61077f61a11f45c4a4e6fc4c3e9b6d51

Chen, Y., & Carliner, S. (2020). A special SME: An integrative literature review of the relationship between instructional designers and faculty in the design of online courses for higher education. *Performance Improvement Quarterly, 33*(4), 471–495. https://doi.org/10.1002/piq.21339

Chivukula, S. S., & Gray, C. M. (2020). Co-evolving towards evil design outcomes: Mapping problem and solution process moves. *Proceedings of DRS*. 1-20. https://doi.org/10.21606/drs.2020.107

Collins, A., Brown, J. S., & Newman, S. E. (1989). Cognitive apprenticeship: Teaching the craft of reading, writing and mathematics. In L. B. Resnick (Ed.), *Knowing, learning and instruction: Essays in honour of Robert Glaser* (p. 453–494). Leonard Erlbaum Associates. https://doi.org/10.5840/thinking19888129

Collins, A., Brown, J. S., & Holum, A. (1991). Cognitive apprenticeship: Making thinking visible. *American educator, 15*(3), 6–11. http://www.kenton.k12.ky.us/dl/general/readings/collins_cogapp.pdf

Costanza-Chock, S. (2020). *Design justice: Community-led practices to build the worlds we need.* The MIT Press.

Croom, A. (2015). *Reflecting on ET4Online 2015*. https://adamcroom.com/2015/04/reflecting-on-et4online-2015/

Design Justice Network [DJN]. (2017). *Design Justice*. https://designjustice.org/s/DJ_2017_Issue3.pdf

Design Justice Network [DJN]. (2018). *Design Justice Network Principles*. https://designjustice.org/read-the-principles

Design Justice Network [DJN]. (2022, November 29). *Signatories.*, from https://designjustice.org/signatories

Design Justice Network [DJN]. (n.d.-a). *Design Justice Principles at Work Working Group*. https://designjustice.org/principles-at-work-wg

Design Justice Network [DJN]. (n.d.-b). *Our history*. https://designjustice.org/djnhistory

EDUCAUSE. (n.d). *About EDUCAUSE*. https://www.educause.edu/about

Gray, C. M., & Boling, E. (2016). Inscribing ethics and values in designs for learning: A problematic. *Educational Technology Research and Development, 64*(5), 969–1001. https://doi.org/10.1007/s11423-016-9478-x

International Society for Performance Improvement [ISPI]. (n.d.). C*ode of Ethics.* https://ispi.org/page/CodeofEthics.

Lin, H. (2007). The ethics of instructional technology: Issues and coping strategies experienced by professional technologists in design and training situations in higher education. *Educational Technology Research and Development, 55*(5), 411–437. https://www.jstor.org/stable/30220501

Mancilla, R., & Frey, B. (2020). A model for developing instructional design professionals in higher education through apprenticeship: Blending theory and practice. *The Journal of Applied Instructional Design, 9*(2). https://dx.doi.org/10.51869/92rmbf

Martin, F., & Ritzhaupt, A. D. (2021). *Standards and competencies for instructional design and technology professionals.* Design for Learning.

https://open.byu.edu/id/standards_and_competencies

McKercher, K. A. (2020). *Beyond sticky notes: Doing co-design for real: Mindsets, methods, and movements* (1st Ed). Inscope Books.

Pollard, R., & Kumar, S. (2022). Instructional designers in higher education: Roles, challenges, and supports. *The Journal of Applied Instructional Design, 11(*1). Retrieved from https://dx.doi.org/10.51869/111/rp

Rabel, K., & Stefaniak, J. (2018). The onboarding of instructional designers in the workplace. *Performance Improvement, 57*(9), 48–60. https://doi.org/10.1002/pfi.21824

Richey, R. C., Fields, D. C., & Foxon, M. (2001). *Instructional design competencies: The standards*. ERIC Clearinghouse on Information & Technology. https://doi.org/10.1007/bf02504950

Romero-Hall, E. (2022). Supporting instructional design graduate education through networked learning and institutional social media. In J. Stefaniak & R. Reese (Eds.), *The instructional design trainer's guide: Authentic practices and considerations for mentoring id and ed tech professionals* (pp. 206–218). Taylor & Francis. https://doi.org/10.4324/9781003109938-20

Slagter van Tryon, P. J., McDonald, J., & Hirumi, A. (2018). Preparing the next generation of instructional designers: A cross-institution faculty collaboration. J*ournal of Computing in Higher Education, 30*, 125–153. https://doi.org/10.1007/s12528-018-9167-3

Spence, R., Rawle, F., Hilditch, J., & Treviranus, J. (Eds.). (2022). *Learning to be human together.* https://ecampusontario.pressbooks.pub/onhumanlearn/

Stefaniak, J. E. (2017). The role of coaching within the context of instructional design. *TechTrends, 61*, 26–31. https://doi.org/10.1007/s11528-016-0128-2

Yusop, F. D., & Correia, A. P. (2012). The civic-minded instructional designers framework: An alternative approach to contemporary instructional designers' education in higher education. *British Journal of Educational Technology, 43*(2), 180–190. https://doi.org/10.1111/j.1467-8535.2011.01185.x

Instructional Design: A Collaboration or A Consultation?

An Example of the Working Relationships Between Instructional Designers and Instructors

Carliner, S. & Chen, Y.

Faculty and Instructional Designer Collaboration
Higher Education
Instructional Design

Although 29 studies of the relationship between instructional designers and faculty in higher education characterized it as collaborative, none defined collaboration (Chen & Carliner, 2021). That's where this position paper begins, addressing these questions: What is collaboration in an educational services context? and To what extent does "collaboration" effectively characterize the relationship between instructional designers and faculty in a higher education context? This paper starts by defining collaboration in the context of educational support services. Then it describes the services offered by instructional designers in higher education and makes the case, at a conceptual level, that collaboration does not fully characterize the nature of the relationship between most instructional designers and instructors, and suggests, instead, the term "consultative" better characterizes this relationship. Next this paper summarizes evidence from an empirical study of three different instructional design services, which supports the concept. This paper closes by suggesting implications to practice, teaching, and research and theory.

Introduction

Although 29 studies of the relationship between instructional designers and faculty in higher education characterized it as collaborative, none defined collaboration (Chen & Carliner, 2021). That's where this design position paper begins. Specifically, it addresses these questions:

- What is collaboration in an educational services context?
- To what extent does "collaboration" effectively characterize the relationship between instructional designers and faculty in a higher education context?

This paper starts by defining collaboration in the context of educational support services. Then it describes services offered by instructional designers in higher education to determine, at a conceptual level, the extent to which the term collaboration characterizes the relationship between instructional designers and instructors and, if the relationship is not collaborative, provide an alternate characterization. Afterwards, this position paper provides a real-world example of these concepts from one study of three different instructional design services. This example is intended to provide some empirical support for the conceptual model. This position paper closes by describing the implications of our findings to practice, teaching, research, and theory.

> *Note: This position paper uses the general term instructors rather than faculty to refer to those who teach. That's because faculty is a term reserved in some institutions for tenure- track faculty. Many others work in instructional roles, including full-time permanent faculty who are not tenure track (called lecturers in some institutions and clinical instructors in others), part-time faculty, and graduate students who, in some institutions, have the opportunity to teach courses.*

Collaboration in the Context of Educational Support Services

This section explores collaboration in the context of educational support services and contrasts it with two other types of relationships: consulting and contracting. Before considering collaboration, however, this section first defines educational support services and contrasts it with educational services.

About Educational Support Services

According to the Government of Canada (2023a), educational services "comprises establishments primarily engaged in:[sic] providing instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centres" (para. 1). Assisting these educational service providers in achieving their missions are groups providing educational services.

By contrast educational services "comprise . . . establishments primarily engaged in providing non-instructional services that support educational processes or systems" (Government of Canada, 2023b, para.1). When writing about instructional design services, Lieberman (2018) characterizes them as support, noting that as a support team, instructional designers do not "have any direct line authority or supervision" (para. 25) and have no means of motivating faculty to strengthen their teaching. Educational support does seem to characterize the general nature of much of the work instructional designers perform in higher education. Although some instructional designers design and develop self-study online courses, most do so under the guidance of subject matter experts (McCurry & Mullinix, 2017; Liu et al., 2007). As will be noted later in this position paper, other instructional designers engage in activities that support instructors but nearly none of those activities involve teaching the credit-bearing or continuing education courses taken by tuition-paying students.

About Collaboration in an Educational Context

In terms of collaboration in an educational context, Goulet et al. (2003) define it as "more than simply dividing up labor"(p. 325); it involves "bringing people and group together for a common purpose" resulting in "some kind of transformation in the participants" (p.325) Characteristics of collaborative work in education include:

- Partners (that is, the people collaborating) working together at all phases of the process and on projects of value to all parties (Tikunoff & Ward, 1983).
- Partners investing effort into building and maintaining a work relationship (Goulet et al., 2003). The longer the working relationship, the more time and incentive exists to

invest time in the working relationship.
- Partners developing mutual respect for one another, something which emerges from the experiences of working collaboratively (Tikunoff & Ward, 1983).
- Partners ensuring that all participants working on the project have the opportunity to be heard (Goulet et al., 2003)
- Partners addressing issues of status and power in the relationship (Stewart, 1997)

These characteristics align with the factors that Chen and Carliner (2021) found facilitated collaborative relationships among instructional designers "communication, attitude, trust, commitment, flexibility, empowerment, and a healthy workplace culture" - (p.483) and with those that hindered those relationships "lack of clarity on the role…ineffective communication, heavy workload, concern for academic autonomy, and ambiguity of status" (p.486).

Goulet et al. (2003) also suggest collaborative relationships are consultative, which involves the giving of information and advice, and involves listening. But that view of consulting might be limited to education. In other service fields, notably management, consulting refers to a particular work arrangement. Rather than a collaborative relationship, in management, consultation refers to a situation in which one party (the client) arranges for the other party (the consultant) to perform specific tasks. According to Turner (1982), traditional consulting involves

> *"1. Providing information to a client. 2. Solving a client's problems. 3. Making a diagnosis, which may necessitate redefinition of the problem. 4. Making recommendations based on the diagnosis. 5. Assisting with implementation of recommended solutions". More advanced goals of consulting include "6. Building a consensus and commitment around corrective action.7. Facilitating client learning —that is, teaching clients how to resolve similar problems in the future. And 8. Permanently improving organizational effectiveness" (para. 6)*

One could argue instructional designers involved in course design and development certainly engage in traditional consulting tasks, but the consulting is merely a means to an ends: designing and developing a course based on the expertise of the instructor (Subject Matter Expert). In other situations, these traditional tasks are the ends of instructional design services; instructors primarily seek an assessment of a particular problem and suggestions on how to address it, such as a problem with teaching, assistance with integrating technology into an existing course, or support for preparing a proposal for a new or substantially revised curriculum. The next section contains further elaboration on this point. The extent of the relationship between instructor and instructional designer is limited to this consultation; corrective action is the primary responsibility of the instructor, who might engage in that action without further involvement of the instructional designer.

Another relationship exists between instructional designers and instructors: contracting. Contracting is an arrangement in which instructional designers develop a "contract" or agreement with an instructor to perform a specifically defined task or series of tasks over a period of time (Carliner et al., 2021). This is an admittedly transactional relationship. Although instructors and institutions can establish contracts with external service providers, they can also establish such agreements with internal groups. In addition, some contracts might cover the entire course design and development process but other contracts might only address certain specific tasks, such as producing audiovisual components or assisting with conformance to accessibility standards. The next section contains further elaboration on this point.

A collaboration implies instructional designers work with instructors through the lives of projects and the two parties mutually support one another. As just noted, two other possible work arrangements also exist. One is consulting, in which instructional designers advise instructors on how to address a particular situation and provide support and guidance in doing so. Although the problem could be a broad one, it is also likely to be discrete and well-defined: one that can be addressed relatively quickly. The other possible work arrangement is contracting, in which an instructional designer agrees to perform a discretely defined and agreed-upon task. The scope of the work arrangement is limited to the terms of the contract. In both arrangements, the relationship between instructors and instructional designers only exists for part of a project and limits the role and influence of instructional designers.

In other words, collaboration could characterize the relationship between instructional designers and instructors; consultation and contracting might also characterize the relationship.

The Conceptual Nature of Work Relationships Between Instructional

Designers and Instructors

This section explores in more conceptual depth the actual nature of work relationships between instructors and instructional designers, and the likelihood that collaboration or one of the other two work arrangements might characterize the relationship. An entire body of research on instructional designers in higher education exists, and it focuses on various aspects of instructional designers' roles in the design of online courses (Bawa & Watson, 2017; Campbell et al., 2009; Gibby et al., 2002; Liu et al., 2007; McCurry & Mullinix, 2017) while working within departments or units focused on e-learning and distance education and in which the primary service instructional designers provide is the design and development of online courses. However, a 2016 study of instructional designers in higher education reported that only 25% of instructional designers work in such situations, suggesting the research provides an incomplete picture (Intentional Futures, 2016).

According to that Intentional Futures (2016) study, instructional designers also work within libraries, Information Technology groups, research centers, individual academic departments and colleges, and within Centers for Teaching and Learning. These other instructional designers work in units with missions other than the design, development, and implementation of online courses and provide services other than the design and development of entire courses. Indeed, many of these units do not provide design and development (much less implementation) services. These services, in turn, define the nature of the working relationship between instructional designers and instructors, and that, in turn, determines the extent to which collaboration is feasible.

Consider the services offered by Centers for Teaching and Learning. A review of a convenience sample of ten teaching and learning centers at universities in the United States and Canada (chosen from the first results of a search on the keywords "teaching and learning centers") suggests that the most common services include:

- Consultations with individual instructors on course design and facilitation, and integration of technology. Individual instructors initiate the request for consultations on challenges with teaching. Although some of these consultations are initiated at the request of a department chair in response to poor teaching evaluations (Lieberman, 2018), many instructors seek this guidance to strengthen their teaching practice or for assistance with the use of a particular technological tool in the classroom.
- Support for inclusive teaching practices, which include online materials, workshops, events, and, in some institutions, individual consultations on how to design, develop, and facilitate welcoming classes.
- Workshops on specific issues in teaching. The workshops address a wide range of topics, from perennial topics like engaging students in large classes to contemporary issues in teaching, such as the impact of ChatGPT. Institutions offer workshops in in-person or live virtual formats. Some institutions also offer workshops on demand.
- Conferences and events on teaching and course design, one-time events usually offered in- person that might address a particular issue in teaching such as inclusive teaching or might involve a presentation by a visiting expert on teaching and learning.
- Web resources, which are online materials about specific aspects of teaching and learning that instructors read online at their convenience.

Nearly all centers for teaching and learning offer these services. In addition, many centers for teaching and learning offer some of these services:

- Support for curriculum development and revision, which involves assistance and background research for a curriculum proposal for a new program or a major revision to a current program. The exact services vary slightly among institutions, but can involve finding similar programs in other institutions, surveying prospective students about their interest in the proposed or changed program, and preparing formal curriculum proposals.
- Review of teaching portfolios, which involves reviewing an instructor's teaching portfolio in preparation for a tenure, promotion, or contract renewal process.
- Teaching evaluations, which can take one of two forms. The more common involves a staff member of the center observing class sessions and offering developmental feedback to instructors on their facilitation skills. Less commonly, Centers for Teaching and Learning administer the student evaluations of teaching at the end of the term and provide the results to instructors and administrators.
- Training in teaching skills for graduate students, which involves at least one or more workshops on teaching for teaching assistants and, at most, a graduate certificate with academic credit that students can list on their resumes.
- Support for work in the Scholarship of Teaching and Learning, which involves helping instructors with finding funding for research on the scholarship of teaching and learning in their fields, conducting the research, and providing assistance with preparing reports of the research for peer-reviewed journals and conferences.

- Communities of practice around teaching, including book clubs, which are informal communities that meet online or in-person to address particular topics and discuss books of interest.
- Teaching Fellows programs, which engage instructors in one of two ways: participating in a program to strengthen their own teaching or becoming an active advocate for teaching and learning among their colleagues.
- Awards, which involve adjudicating requests for teaching-related travel funding and adjudicating applications for outstanding teaching awards.
- Support for course production, which involves assisting instructors with the production of particular instructional materials rather than an entire course, such as a video needed for a lesson.

Table 1 summarizes the services offered by the Centers for Teaching and Learning in this convenience sample.

Table 1

Services offered by Centers for Teaching and Learning

Institution	Location	Center Name	Consultations with faculty on course design and facilitation	Consultations with faculty on educational technology	Support for inclusive teaching	Review of Teaching portfolio	Support for curriculum development and revision	Support for SOTL	Workshops on teaching and course design for faculty	Teaching evaluations	Teaching Workshops for Grad Students
Boise State University	Boise, Idaho USA	Center for Teaching and Learning	X		X				X	X	X
Northern Michigan University	Marquette, Michigan USA	Center for Teaching and Learning	X	X	X				X	X	
Queen's University	Kingston, Ontario, Canada	Centre for Teaching and Learning	X	X	X		X	X	X		X
Simon Fraser University	Vancouver, British Columbia Canada	Centre for Educational Excellence	X	X	X		X	X	X	X	X
University of Alberta	Edmonton, Alberta, Canada	Centre for Teaching and Learning	X	X	X		X		X		
University of California at Berkley	Berkley, California USA	Center for Teaching and Learning	X	X	X		X			X	
University of Colorado at Boulder	Boulder, Colorado USA	Center for Teaching and Learning	X (individual or group consultations)		X			X	X	X	X
University of Maryland	College Park, Maryland, USA	Teaching and Learning Transformation Center	X	X	X	X	X		X	X	X
University of Wisconsin--Madison	Madison, Wisconsin USA	Center for Teaching, Learning, and Mentoring	X	X					X		X
Washington University	St. Louis, Missouri, USA	Center for Teaching and Learning	X	X	X			X	X	X	X

These services differ in length from the design and development of entire e-learning courses. Design and development can take several months or years. By contrast, some of these services can involve as little as a one-hour working relationship between the instructional designer and the instructor.

The services also differ in the nature of the relationship between the instructional designer and the instructor. In most of these services, the instructional designer advises the instructor: a consultative relationship. In other cases, the instructional designer performs work under the direction of the instructor as a service provider (a contracting relationship). Neither of these types of relationships is collaborative by definition.

Table 2 summarizes both the length of the engagement with each of these services and the nature of the working relationship. Note that, in most of these services, the instructional designer plays a consultative role rather than a collaborative role. That is, the instructional designer advises the instructor; the instructional designer plays a limited if any role in the associated project.

Table 2

Length of the engagement and nature of working relationship in specific instructional design services

Service	Length of the interaction between instructional designers and instructors	Nature of the working relationship of the instructional designer to the instructor
More common services		
Consultations with instructors on course design and facilitation	2 to 4 sessions	Consultative
Consultations with instructors on educational technology	1 to 5 sessions	Consultative
Support for inclusive teaching	1 to 2 sessions	Workshop instructor (instructional designer) and student
Review of Teaching portfolio	1 to 2 sessions	Consultative
Support for curriculum development and revision	10 to 100 hours (varies depending on the complexity of the situation)	Instructional designer works under the guidance of the instructor
Support for SOTL	1 to 10 sessions (varies depending on the exact nature of the request)	Consultative
Workshops on teaching and course design for instructors	1 to 2 sessions each	Workshop instructor (consultative)
Teaching evaluations	· Observations: 1 to 5 sessions · Student evaluations of teaching: No direct interaction	Observations: Consultative Student evaluations of teaching: Service provider
Teaching workshops for graduate students	3 to 100 hours	Instructor
Conferences and events on teaching and course design	Varies: · Event planning: 10-40 hours · Event participants: 1 to 10 hours	Varies: · Event planning team Collaborator on a team · Event participants: Service provider
Web resources	Asynchronous online	Author (no direct relationship)
Less common services		
Book Club / CoP	Varies	Facilitator (consultative)
Teaching Fellows Program	8 to 40 hours	Instructional designer acts as an instructor, mentor, and coach as well as beneficiary of the advocacy
Awards	2 to 10 hours	Instructional designer oversees an adjudication process; might not interact with individual instructors except for those on the adjudication panel
Support for course production	4 to 50 hours	Service provider. Instructional designer performs work as guided by the instructor

The services offered by the Centers for Teaching and Learning admittedly differ from those offered by other groups within the university that employ instructional designers. However, those instructional designers working in academic units like Colleges (or Faculties in the British system) often perform a mix of tasks, some involving course design and development and some similar to Centers for Teaching and Learning. Similarly, instructional

designers working in Information Technology groups perform services more similar to those of a Center for Teaching and Learning than an e-learning unit because Information Technology groups have responsibilities to train staff in the use of technologies and assist them with integrating that technology into their courses (Carliner & Driscoll, 2019).

In other words, on a conceptual level and based on the evidence provided, the nature of many instructional services in higher education groups do not lend themselves to collaboration. They do not involve working together at all phases of the process (Tikunoff & Ward, 1983). The work might not involve an effort to build and maintain a work relationship, especially if the relationship only lasts the length of a 2-hour workshop or similar short-term, tightly focused service (Goulet et al., 2003). That, in turn, limits the invested in the working relationship and development of mutual respect for one another, ensuring that all participants working on the project have the opportunity to be heard (Goulet et al., 2003) and addressing issues of status and power in the relationship (Stewart, 1997). These might not happen because people are trying to be uncollaborative; but the nature of the service results in a more transactional rather than collaborative relationship.

An Example of the Working Relationships Between Instructional Designers and Instructors

To move beyond a conceptual view of the working relationship between instructional designers and instructors, the second author of this position paper study conducted a case study analysis of three instructional design services offered by universities (Chen, 2023), which we present as an example to illustrate the relationship. The three services studied include:

- One that provided a complete design and development service for online courses;
- Another that provided express service: supporting instructors who were reworking their classroom courses for live virtual presentation during the pandemic on their own and who sought assistance with particular tasks, such as mastering the technology or preparing certain types of activities but not with the entire course design and development process;
- A third service that provided instructors with access to workshops and one-on-one consultations on an as-requested basis and on topics offered by the institution which inspired the instructor to register for the workshop or consultation sessions.

Studies of the first two services were conducted at one comprehensive university in central Canada and the study of the third service was conducted at a different comprehensive university in central Canada. Comprehensive university is a term used in Canadian higher education for universities that offer a full selection of majors but do not include medical and law schools. For each of the three services studied, the co-author conducted semi-structured qualitative interviews with several instructors who used that service (six for the first and third service, three for the second). Interviews explored the specific assistance instructors sought and why, the process followed to support this request from beginning to end, and their reflections on the process. When possible, participants provided documentation of the design effort including design plans and draft materials, which illustrated issues arising in the interviews.

All participants were instructors. No instructional designers were included among the participants. Almost none of the prior studies on the relationships between instructional designers and instructors on online course design projects in higher education include instructors (Chen & Carliner, 2021). This study included eight tenured or tenure-track instructors, two teaching faculty, and five part-time instructors.

The results provide many insights into the relationship between instructional designers and instructors. First, the descriptions of the ways different services affected the design and development of courses suggest the extent of involvement and influence of instructional designers varies substantially based on the type of service in which instructors engaged. For example, an instructional designer working on the complete design and development of an e-learning course would engage with needs assessment and could provide specific suggestions on pedagogical techniques for the entire course. By contrast, an instructional designer working through the express service only worked on those issues on which instructors sought assistance, such as activities to increase interactivity within class sessions or the design and implementation of online quizzes and exams. Instructors who engaged with workshops still benefitted from the ideas and insights offered by instructional designers, but they were left on their own to interpret what the ideas meant and determine how to implement those ideas in their courses.

In addition, an analysis suggests instructors primarily value the expertise provided by instructional designers in helping instructors achieve their goals for the course (Chen, 2023). In the case of all three services, instructors continue to see themselves as the primary creators of the courses (Chen, 2023). This is true even for instructors who worked with instructional designers to design and develop entire online courses. Even though the work relationship is close and lasts for months, even these instructors see instructional designers serving a supporting role to their own as subject matter experts and course owners, bringing expertise the instructors do not have. This finding supports the idea that instructors consult with instructional designers and contrasts with prior literature, in which instructional designers characterize their relationship with instructors as collaborative (Chen & Carliner, 2021). Although this is just one qualitative study conducted at two Canadian universities and the results might not transfer to other institutions, they do provide initial empirical support for the conceptual description of the ways in which instructional designers work with instructors. This description is presented in the last section and challenges the rest of the literature.

Implications of these services for relationships between instructional designers and instructors

The ways instructional designers and instructors view instructional designers' roles on projects do not align. Part of this is that many instructional designers engage in shorter-term and more tightly-defined services than the development of a complete online course, from which the recommendation emerges the relationship between the two parties be collaborative. Prior literature is based on research that is almost exclusively conducted with instructional designers and omits the voices of instructors (Chen & Carliner, 2021). When instructors were asked in the study by Chen (2023), they viewed the relationship differently than instructional designers.

If the relationship is not seen by both instructors and instructional designers as a collaboration, then instructional designers might need to seek an alternate term to describe their relationship with instructors. One possible term is a consultation. At the least, it is the term that characterizes the relationship between instructors and instructional designers in the majority of services described earlier in this position paper. But it is also rooted in a competency model for instructional design professionals who specialize in a different educational sector: workplace learning. The Canadian-based Institute for Performance Learning (I4PL) characterizes the working relationship between learning and development professionals (as they call people working in the field) and instructors and other stakeholders as Partnering with Clients, and identifies it as the central competency area for the work. According to this competency model, Partnering with Clients entails:

- "Demonstrat[ing] awareness of the client organization;
- Support[ing] clients in making effective choices;
- Develop[ing] agreements with clients;
- Manag[ing] changes throughout the project;
- Interact[ing] effectively [with clients]" (I4PL, 2016, p. 19).

Although it describes the competencies needed to consult, the concept of Partnering with Clients embodies many of the sought-after characteristics of a collaborative work relationship. More fundamentally, by characterizing the relationship between instructional designers and instructors as a consultation, the expectations of the parties might be better aligned with the realities of the relationship. It is also noteworthy that the Canadian Association of Instructional Designers, many of whose members work in higher education, has adopted the Institute for Performance and Learning competency model.

Implications

If the relationship between instructional designers and instructors is a consultation rather than a collaboration, there are significant potential implications for the field.

In terms of practice, the consultative relationship affirms the client-professional relationship that exists between many instructional designers and their stakeholders in workplace learning might also characterize the relationship between instructional designers and instructors in higher education. Instructors only work with instructional designers when they have a specific need, such as the need for assistance with designing and developing a course, coaching to strengthen one's classroom teaching, and research assistance with a curriculum proposal for a new program. The exact support instructors need therefore varies depending on the nature of assistance sought and where instructors are in their course design, development, and implementation effort when they seek assistance. Rather than

starting engagements with a needs assessment of the instructional program, instructional designers might instead begin engagements by clarifying the request, determining the type of support instructor needs, identifying sought-after outcomes, and clarifying the relationship with instructors.

This client-service provider relationship also has implications for its power dynamics. This consultative approach acknowledges the reality that instructors often have the final authority to make decisions. Admittedly, some instructional designers like Kim (2017) argue instructional designers should have faculty status, partly because they engage in activities like scholarship but also to provide more decision-making authority. But even in instances in which instructional designers have faculty status, subject matter faculty retain the final authority on their courses because they are the instructors of record and instructional designers are not. Shifting the stated role of instructors from partners and collaborators to clients affects the stated dynamic of the relationship but could also bring it more in line with the emerging perception of the relationship from instructors' viewpoints (Chen, 2023) and the short-term nature of the services offered by instructional designers. Shifting the characterization to consultation or client-based work could also strengthen the expectations of all parties regarding the relationship.

This position paper also has several implications for teaching. At the most basic is the characterization of the role and relationship between instructional designers and other stakeholders, especially in higher education. Much of the instruction presents the role of instructional designers as leading the entire process of designing and developing a course from beginning to end. Although that might be true for some instructional designers in some institutions and on some projects, it is not necessarily the case for most instructional designers in most organizations. Although many instructional designers have a trusting relationship with instructors, in many of those instances, instructors still have final approval rights for the courses. Some instructional designers only work on part of a course—either working from beginning to end on one segment of a course or only working with certain tasks on a course. Some instructional designers do not design or develop courses at all. They support faculty in integrating technology and strengthening their teaching or support curriculum development efforts. In most of these situations, the instructor is a client. At the least, educational programs should prepare students for all of these types of assignments. At the most, educational programs should prepare students for consultative work. The Partnering with Clients competency area in the Institute for Performance and Learning competency model provides a framework for guiding such educational preparation.

In addition to implications for practice and teaching, this position paper has implications for research and theory. Although a body of literature focuses on the competencies needed across instructional design positions (Kenny et al. (2005); Klein & Kelly, 2018; Ritzhaupt, & Kumar, 2015; Sims & Koszalka, 2008; Wang et al., 2021), most of that research focuses on common competencies needed by all instructional designers. These studies do not provide insights into the different types of work assignments instructional designers hold nor the different types of contexts in which they work, and how those differences might align with—or deviate from—common perceptions of the work. This broader picture of the work of instructional designers might, in turn, be used to adjust the key theories and practices driving the field, starting with instructional design models. Such studies assume instructional designers are involved with the process from beginning to end and few account for differences by educational sector (schools, higher education, workplace training), scope of work required by the assignment (curriculum plan, brand new course, completely revised course, revisions to parts of the course), and whether the instructional designer is working on a course or similar program, rather than working in an advisory or consultative role on one or more aspects of instruction. Even the somewhat newer Successive Approximation Model (Allen & Sites, 2012), which brings a more flexible agile approach to instructional design, makes many of the same assumptions as its predecessors such as ADDIE (Molenda, 2003), Dick, Carey, and Carey (2014), and Smith and Ragan (2004).

Although collaboration is ideal for certain types of instructional design projects, a combination of characteristics, including the exact nature of the work assignment and power dynamics in the workplace, often limits the potential for collaboration as defined earlier in this article. Characterizing the relationship as consultative might align better with the actual nature of the relationship and can help better manage expectations in engagements between instructional designers and instructors.

References

Allen, M. & Sites, R. (2012). *Leaving ADDIE for SAM: An Agile Model for Developing the Best Learning Experiences.* Alexandria, VA: ATD Press.

Bawa, P. & Watson, S. (2017). The chameleon characteristics: A phenomenological study of instructional designer, faculty, and administrator perceptions of collaborative instructional design environments. *Qualitative Report, 22*(9), 2334-2355. Retrieved Sept. 29, 2019 from https://nsuworks.nova.edu/tqr/vol22/iss9/4

Campbell, K., Schwier, R. A., & Kenny, R. F. (2009). The critical, relational practice of instructional design in higher education: an emerging model of change agency. *Educational Technology Research and Development*, *57*(5), 645-663. https://doi.org/10.1007/s11423-007-9061-6

Carliner, S., Driscoll, M., & Thayer, Y. (2021). *Career Anxiety: Guidance Through Tough Times*. Christiansburg, VA: International Career Press.

Carliner, S. & Driscoll, M. (2019). *An Overview of Training and Development: Why Training Matters*. Minneapolis, MN: Lakewood Media.

Chen, Y. (2023) *Exploring instructors' experiences with instructional design Supported course design in higher education: An analysis of three cases based on activity theory* [Doctoral dissertation, Concordia University.] Concordia *SPECTRUM repository.*. Doctoral Dissertation.

Chen, Y. & Carliner, S. (2021). A special SME: An integrative literature review of the relationship between instructional designers and faculty in the design of online courses for higher education. *Performance Improvement Quarterly*, *33*(4), 471-495.

Dick, W., Carey, L., & Carey, J. O. (2014). *The Systematic Design of Instruction* (8th ed.). New York, NY: Pearson.

Gibby, S., Quiros, O., Demps, E., & Liu, M. (2002). Challenges of being an instructional designer for new media development: A view from the practitioners. *Journal of Educational Multimedia and Hypermedia*, *11* (3),195-219. Retrieved September 29, 2019 from https://www.learntechlib.org/primary/p/9266/.

Goulet, L., Krentz, C., & Christiansen, H. (2003). Collaboration in education: The phenomenon and process of working together. *Alberta Journal of Educational Research*, *49*(4).

Government of Canada. (2023a). Educational services--61, Summary – Canadian Industry Statistics. Ottawa, ON: Government of Canada, March 8, 2023. Retrieved April 3 from https://ised-isde.canada.ca/app/ixb/cis/summary-sommaire/61

Government of Canada. (2023b). Educational support services--6117, Summary – Canadian Industry Statistics. Ottawa, ON: Government of Canada, March 8, 2023. Retrieved April 3 from https://ised-isde.canada.ca/app/ixb/cis/summary-sommaire/6117

Institute for Performance and Learning. (2016). *Competencies for Learning and Development Professionals*. Toronto, ON: Institute for Performance and Learning.

Intentional Futures. (2016). Instructional Design in Higher Education: A report on the role, workflow, and experience of instructional designers. Seattle, WA: Intentional Futures.

Kenny, R., Zhang, Z., Schwier, R., & Campbell, K. (2005). A review of what instructional designers do: Questions answered and questions not asked. *Canadian Journal of Learning and Technology/La revue canadienne de l'apprentissage et de la technologie*, *31*(1).

Kim, J. (2017.) The liminal role of instructional designers, *InsideHigherEd.com*, (August 23, 2017). Retrieved April 3, 2023 from https://www.insidehighered.com/digital-learning/blogs/default/why-instructional-designers-should-be-counted-educators-rather- staff

Klein, J. D. & Kelly, W. Q. (2018). Competencies for instructional designers: A view from employers. *Performance Improvement Quarterly*, *31*(3), 225–247.

Lieberman, M. (2018). Centers of the pedagogical universe, *InsideHigherEd.com* (February 28, 2018). Retrieved March 30, 2023 from https://www.insidehighered.com/digital-learning/article/2018/02/28/centers-teaching-and-learning-serve-hub-improving-teaching

Liu, M., Kishi, C., & Rhoads, S. (2007). Strategies and heuristics for novice instructional designers as they work with faculty content experts in a university setting. In M. Keppell (Ed.), *Instructional Design: Case Studies in Communities of Practice* (pp. 36-67). Hershey, PA: Information Science Publishing. http://doi.org/10.4018/978-1-59904-322- 7.ch003

McCurry, D. S. & Mullinix, B. B. (2017). A concierge model for supporting faculty in online course design. *Online Journal of Distance Learning Administration, 20*(2), 1-7. Retrieved September 29, 2019 from https://www.learntechlib.org/p/188448/

Merriam Webster. (2022). Consulting. *Merriam-Webster Online Dictionary.* Retrieved November 29, 2022 from https://www.merriam-webster.com/dictionary/consulting.

Molenda, M. (2003). In search of the elusive ADDIE model. *Performance improvement, 42*(5), 34-37.

Nworie, J. (2022). The increasing quest for instructional designers and technologists in higher education and corporate settings, *Contemporary Educational Technology*, *14*(1). https://doi.org/10.30935/cedtech/11481

Ritzhaupt, A. D. & Kumar, S. (2015). Knowledge and skills needed by instructional designers in higher education. *Performance Improvement Quarterly, 28*(3), 51-69. https://doi.org/10.1002/piq.21196

Sims, R. C. & Koszalka, T. A. (2008). Competencies for the new-age instructional designer. In *Handbook of research on educational communications and technology* (pp. 569-575). Routledge.

Smith, P. L. & Ragan, T. J. (2004). *Instructional Design.* New York, NY: John Wiley & Sons.

Stewart, H. (1997). Metaphors of interrelatedness: Principles of collaboration. In H. Christiansen, L. Goulet, C. Krentz, & M. Maeers (Eds.), *Recreating Relationships: Collaboration and Educational Reform.* Albany, NY: SUNY Press, 27-53.

Tikunoff, W.J. & Ward, B.A. (1983). Collaborative research on teaching. *Elementary School Journal, 3*, 453-468.

Turner, A. N. (1982). Consulting is more than giving advice. *Harvard Business Review* (September-October 1982). Retrieved April 3, 2023 from https://hbr.org/1982/09/consulting-is-more-than-giving-advice

Wang, X., Chen, Y., Ritzhaupt, A. D., & Martin, F. (2021). Examining competencies for the instructional design professional: An exploratory job announcement analysis. *International Journal of Training and Development, 25*(2), 95-123.

Teaching and Learning Websites Consulted in the Analysis

Boise State University. (2023). Center for Teaching and Learning. Retrieved March 30, 2023 from https://www.boisestate.edu/ctl/

Northern Michigan University. (2023). Center for Teaching and Learning. Retrieved March 30, 2023 from https://nmu.edu/ctl/.

Queen's University. (2023). Centre for Teaching and Learning. Retrieved March 30, 2023 from https://www.queensu.ca/ctl/.

Simon Fraser University. (2023). Centre for Educational Excellence. Retrieved March 30, 2023 from http://www.sfu.ca/cee.html.

University of Alberta. (2023). Centre for Teaching and learning. Retrieved March 30, 2023 from https://www.ualberta.ca/centre-for-teaching-and-learning/index.html.

University of California at Berkley. (2023). Center for Teaching and Learning. Retrieved March 30, 2023 from https://teaching.berkeley.edu/home.

University of Colorado at Boulder. (2023). Center for Teaching and Learning. Retrieved March 30, 2023 from https://www.colorado.edu/center/teaching-learning/.

University of Maryland. (2023). Teaching and Learning Transformation Center. Retrieved March 30, 2023 from https://tltc.umd.edu/

Washington University. (2023). Center for Teaching and Learning. Retrieved March 30, 2023 from https://ctl.wustl.edu/

Explorations in Effective Co-Design: A Case Study

Wehr, K.

Co-Design Equity Participatory Research

This paper provides a rich description of a participatory research project which employed co-design methods to conduct research with students. This case study offers strategies and tools for other research teams who may consider undertaking a participatory research project which involves co-designing with students, emphasizing lessons learned about recruiting, facilitating, and communicating with stakeholders about the emergent, flexible nature of this work. Findings from the project discussed in the case study are included, and reflections on the overall project design are discussed.

Introduction

In 2022, a team of learning experience designers at WGU Labs redefined collaboration as the result of an intricate research project. This project involved working in partnership with both

internal and external collaborators to facilitate co-design activities with online learners. This paper will briefly review some background information about the project this research is part of, share key learnings that may serve as a checklist for others who are interested in undertaking similar collaborative projects, provide a narrative of the research activities, and discuss both the research findings and reflections on the processes and practices that were part of this effort.

Previous research at a primarily online university revealed differences in online student graduation rates, especially for those who entered the institution with more transfer credits. Further analysis revealed that students with low incomes were more likely to have fewer credits and therefore less likely to graduate. When evaluating the data based on race and ethnicity, the team found that Black, Indigenous, and students of color (BIPOC) were more likely to fall into this category and were impacted more than white, higher income students. The analysis also identified a key turning point in the student journey. While gaps remained, persistence into the second year led to increased graduation rates across all groups, leading the team to focus on the first year as an opportunity for improvement.

As a result of these findings, a team of learning experience designers and researchers developed a participatory research study to better understand the experiences of BIPOC and low-income learners during the first year of college in order to identify potential solutions to assist these students into the second year. This paper will discuss the development and implementation of the participatory research design, and highlight opportunities for collaboration across the stakeholder team.

Setting Strong Foundations for Collaboration

Perhaps the most important takeaway from this collaborative effort was the need for dedicated, routine communication early in the project to negotiate, establish, and revisit the motivations for undertaking any project. Krause (2020) offers outlines for these types of discussions along with suggested artifacts to co-create with stakeholders, such as a funding web, which can help visualize the relationships between power, money, and the key decision-makers in any collaborative project. Artifacts like the funding web, and similar variations, can bring visibility to influencing factors that would otherwise go unstated, and help illustrate the connections among those who ultimately have the power to approve or change the course of the project. Power does not always correlate to who has the most money. Krause (2022) emphasizes that often, those with the data should be considered among those with a lot of power in a project, as research project success mostly hinges on access to data. While a funding web might not be the best fit for every project, at the very least, conversations should be had around which individuals or teams hold ultimate responsibility for various stages of a project, and the reasons why should be documented in a way that is clear and easy to revisit as the project unfolds.

Once the stakeholder team has identified who will be at the proverbial table, and how much power each party will have in the day-to-day tasks of getting the project done, goals and motivations for the project can be discussed and prioritized according to the relationships

identified from the funding web discussion. Motivations will shape the goals for the project, and it is important for all relevant stakeholders to have a clear understanding of what the project goals are and are not, and why the team has chosen to include some goals and not others. For example, in addition to providing a rich account of the first-year experience from the perspectives of BIPOC/low-income learners, there were several parallel goals stakeholders had in mind for the research detailed in this paper. First, recognizing no one at the table had the lived experience needed to truly inform a solution for BIPOC and low-income learners, all stakeholders agreed authentic student participation in the identification of possible solutions was a high priority. Second, those who would interact with participants wanted to intentionally commit to mindsets for conducting ethical participatory research with historically marginalized groups in higher education.

It is also key to understand any constraints at this stage of the work and to think critically about how those constraints may impact different stakeholders and their work towards the project. Use the outcomes from the funding web to develop a process for alerting the rest of the stakeholder team to any unanticipated impacts as a result of constraints, and know which individuals or teams have the ultimate power to approve or deny workarounds that may impact the project plan.

Key Learning: Foundation Conversation Checklist

- Identify all stakeholders.
- Identify relationships among stakeholders with regard to money, power/influence, and other important factors.
- Determine stakeholder motivations.
- Translate motivations into clear project goals.
- Discuss project constraints and how workarounds will be determined.

Regarding the project at the center of this paper, the stakeholder team determined the following during the foundation stage:

- Who is at the project table: The research team (WGU Labs learning experience designers and researchers), partner institution's Core Team (department leads and relevant staff who will support the research team), and the grant organization (represented by an individual who will receive progress reports at predetermined times throughout the project).
- Project Motivation: Center the perspectives of first-year BIPOC and low-income students through a participatory research process.
- Project Goal: Develop interventions to support BIPOC and low-income students during the first year at a primarily online institution to increase enrollment into the second year.
- Potential Constraints: Budget, timeline, and access to study participants.

Theoretical Framework & Rationale

After the foundational conversations have been had, those involved in conducting the actual research can move forward with the research process. At this stage, not all stakeholders will be as involved as they were in the initial conversations, but communicating each phase of the research process is a key activity that should be carefully considered. Ensuring all stakeholders are informed will allow for more efficient collaboration of all groups as needed throughout the project's duration. Communicating the research questions and theoretical framework clearly, as well as the rationale behind them, is the first step.

Time invested in the foundation-building conversations allowed for a straightforward translation of project motivations and goals into research questions. As a result, the learning experience designer-led research team generated a theoretical framework for the project which clearly connected to the methodology. When communicating the process of developing the research questions and theoretical framework, stakeholders were most interested in the reasons why the scholarship was appropriate for the goals and motivations of the project, and how that research connected to the methods the team selected for data collection and interpretation of findings. This helped the stakeholders understand what to expect as the project unfolded.

The following research questions were used to guide the design of methodology and participatory data collection activities.

1. How do students' experiences during the first year differ based on race, ethnicity, and socioeconomic status? (First-year experiences include: (a) navigating the university; (b) community/belonging; (c) academic experiences; and (d) relationship-building experiences)
2. What experiences do students identify as milestones or pain points?
3. How do students' perceptions of the first-year experience support or conflict with the goals of proposed pilot initiatives?

After the research questions were developed, the research team identified appropriate scholarship to drive the methodology. Since this research project aimed to understand the specific experiences of students through their intersectional identities in a participatory way, the team explored diversity science literature. Diversity science, as explained by Plaut (2010), considers the subject of differences among people and the ways in which people identify and uphold differences, particularly with regard to race and ethnicity. In addition to studying the boundaries people create through processes and social interactions, diversity science also examines the consequences of these distinctions (Plaut, 2010). "These significant social distinctions are not simply natural, neutral, or abstract," Plaut (2010, p. 77) argues, and encourages researchers to examine the ways institutions have contributed to inequality through practice and policy decisions. It is this directive in particular that makes diversity science a worthwhile theoretical grounding for the project at hand. Rather than situating the problem of persistence as a deficit of BIPOC and low-income learners, the research team wanted to focus on the barriers created by the system and their effects on BIPOC and low-income learners specifically.

With this core belief at the forefront of the research process, the team explored ways to weave participatory action research methods and user experience research methods together to create a participatory inquiry process in alignment with the additional goals

stated by the stakeholders and research team. The protocol intentionally prioritized students and also recognized the significance of specific staff and faculty groups in any effort to transform the first-year experience. Participatory research is an umbrella term for a variety of methods that share some core values, primarily a commitment to “alternative models for the creation of transformational knowledge” (Bradbury, 2015, p. 6), and is often emergent with a focus on knowledge in action (Bradbury, 2015). These core values drove the protocol design early on and led the research team in choosing appropriate methods from user experience research to make up for the activities participants would partake in during the data collection. At the beginning of the project, the team intended to conduct true participatory action research, which emphasizes collective inquiry with the ultimate goal of cooperative action for change and also prioritizes critical reflection on the ways researchers create knowledge with, rather than about, study participants (Bradbury, 2015). Astute readers may already question the lack of student voice at this stage of the project, and this case study will detail the constraints that led to concessions regarding this goal later in the paper.

User research, and specifically user experience research, was also selected for this project because of the technology-heavy environment students, staff, and faculty use to interact at a primarily online institution, and because the ultimate project goal was to design solutions that could ultimately be conducted as pilot tests later on. Kuniavsky et al. (2012) describe user research as a “process of figuring out how people interpret and use products and services” (p. 3). Because the research team chose to frame the problem of achievement as an issue with the system and wanted to explore the system’s effects on a specific population of students, who were acting as users, this approach was valuable for providing structure around the activities the team would facilitate with participants. The team selected interviews, surveys, and focus groups as the primary data collection strategies, but emphasized focus groups as an opportunity to apply the participatory research lens.

Key Learning: Communicating and Establishing Trust in the Research Process

One of the main challenges the team faced from this stage onward was justifying the rigor of the chosen methods for conducting the research and interpreting findings. Rigor in applied research is always challenging to communicate, and the rigor of participatory research is acknowledged as complex (Bradbury, 2015). Stringer (2013) describes rigor in action research as having designated checks for trustworthiness. The outcomes of the research must be questioned and justified to ensure they are not reflections of the biases of the research team (Stringer, 2013). Qualitative research practice offers strategies for ensuring the trustworthiness of findings, including triangulation and member-checking, along with providing thick description (Creswell & Miller, 2000). Thick description can often be in contention with the practical realities of stakeholders’ available time and existing expertise.

Communicating the rigor or trustworthiness of the research required some time spent educating stakeholders, and a delicate balance of sharing the right amount of information to satisfy the stakeholders without requiring significant and unplanned amounts of their limited time. In hindsight, collaborating with the stakeholder team around the indicators they expected to see signal rigor or trustworthiness in the results would have been a productive

effort to include in the foundation conversations described previously in this case study. Consensus on those parameters would have allowed the research team to develop a protocol that addressed concerns ahead of time rather than set up a situation where the stakeholders questioned the results.

Research Population and Sample

In previous sections of this case study, the research participant population has been broadly identified. Participants were recruited via mass email campaigns to students who met the inclusion criteria outlined below. A recruitment list containing email addresses for students meeting the inclusion criteria was generated by the institution and oversampled to increase the representation of Indigenous students based on findings from the discovery phase of research. This list was then segmented into three smaller lists, and each group received an invitation to participate in either a survey, focus group, or interview. The size of the total recruitment pool was generated based on an estimated participation rate of 15% according to the institution's internal marketing statistics. In other words, the team expected 15 percent of students who received the email would participate in the study. Using the goal participation numbers below, the institution representative calculated a list size that was most likely to generate the needed student participation numbers. The invitation emails were distributed through the institution's main email communication channel. The research team utilized Zoom registration to manage sign-ups for focus groups, Calendly to manage sign-ups for interviews, and the survey email containing a direct link to the survey in Qualtrics. The research team provided the text of the email invitations to a representative from the institution who facilitated the distribution process to maintain the security of sensitive student contact information.

Student Participant Inclusion Criteria

- Enrollment date within the past calendar year.
- Less than 21 transfer credits.
- Self-identified as Black, African American, Indigenous, Hispanic, Latinx, or Hawaiian Pacific Islander in the institution's student information system.
- Expected Family Contribution of less than $35,000.

The research team set target participation rates for each data collection strategy based on recommendations for user research methods by Baxter et al. (2005).

- Interviews: 6-10.
- Focus Groups: 5-10.
- Survey: up to 100.

To recruit faculty and staff, a similar approach of inviting participants to take a survey, complete an interview or join a focus group was utilized. The inclusion criteria for staff and faculty are summarized below.

Staff Participant Inclusion Criteria

- Experience advising first-year students.
- Member of Financial Aid Services staff.
- Member of Admissions staff.
- Manager recommendation (to allow work time to be used for participation).

Faculty Participant Inclusion Criteria

- Greater than one year of experience teaching at the institution.
- Instructors in a specific subset of general education courses who are likely to have high first-year student enrollment.

Students and faculty were compensated $50 for their time participating in the research regardless of which activity they completed. Staff were granted release time to participate in the research during work hours. Participation rates are summarized in the table below.

Table 1

Participation rates across data collection activities

	Student Participation			**Staff/Faculty Participation**		
	Co-Design Focus Groups	**Interviews**	**Survey Responses**	**Co-Design Focus Groups**	**Interviews**	**Survey Responses**
Participants	20	1	95	9	9	31
Goal Participation	80	5	60	20	15	40

Note. Goal participation rates were derived from user research guidance by Baxter, et al. (2005).

Methods

The research team designed participatory activities to be conducted during focus group sessions. McKercher's (2020) co-design inspired the team to explore activities that would allow for the sharing of power, development of relationships among the participants for the duration of the collaboration, and allow the participants to share insights from their lived experience in spaces designed to maximize the safety of traditionally marginalized participants. Ensuring participation in the research did not subject BIPOC and low-income students to repeated harm was a crucial ethical requirement for the research team, and, as a result, the team decided to host student-only sessions to eliminate the power differential among students and staff/faculty. Staff and faculty participated in comingled focus group sessions.

Co-design inspired activities were designed to be driven by participant conversations. The team used the initial discovery research detailed in Footnote 1 to develop prompts in the form of “How Might We Statements” (IDEO, n.d.) as conversation starters, but the facilitators were prepared and able to support the students' lead, should sessions shift topics to other sources of frustration in the first year. The same prompts were utilized for the faculty/staff focus group sessions. Miro, a virtual whiteboard tool, housed the protocol. All participants were expected to join sessions virtually, which required an online tool that supported flexible collaboration. A combination of facilitator experience and free guest user access led the research team to select Miro for this purpose.

These co-design focus group sessions began with a practice activity: “What are the different uses for a brick?” This was designed to expose participants to the features of Miro in a low-stakes way and to practice the type of exploratory thinking the facilitators hoped to elicit during the session. After the warm-up, participants were introduced to the first prompt, and the remaining time was divided among identifying pain points, brainstorming solutions, categorizing ideas, and voting on potential solutions. After each session, a follow-up Qualtrics survey was distributed as a way of virtual member-checking. Participants were asked to review the Miro board and reflect on the session.

A tool that proved highly valuable in thinking through the setup of the collaborative activities as well as the analysis of data was the Creative Matrix (LUMA Institute, 2021). The matrix is primarily used to generate solutions to problems at the intersection of complex topics. The table below is an example of a Creative Matrix. The research team positioned the “How Might We” prompts as column headings, and developed solution categories within each row. One hallmark of the Creative Matrix is the “wildcard” row, which allows for solutions which don’t fit into the pre-designated categories. The Creative Matrix is a way to see relationships and ensure specific intersections of complicated challenges are not unintentionally overlooked.

Figure 1

Creative Matrix example

	How might we strengthen relationships between students, faculty and staff?	How might we reduce barriers in navigating the institution for first year students?	How might we support community building during the first term at our institution?
Student-focused solutions			
Staff/Faculty-focused solutions			
Institution-focused solutions			
Wildcard			

	How might we strengthen relationships between students, faculty and staff?	How might we reduce barriers in navigating the institution for first year students?	How might we support community building during the first term at our institution?
Solutions			

Recognizing synchronous group participation would be a barrier for many students who met the inclusion criteria beyond those who required accessibility accommodations, the team realized the need to provide alternative methods to authentically include all interested voices. After the focus group protocol was created, the research team used that protocol to develop an emergent interview guide and survey that covered the same topics. Mimicking the flexible and emergent qualities of the focus group sessions was easier to do for interviews, as interviewers only needed to be skilled in asking appropriate follow-up questions to allow the interviewee the chance to lead the conversation. However, designing a straightforward survey that allowed for similar choice and flexibility proved to be a greater challenge. The Creative Matrix structure inspired a combination of branching logic and open-ended questions to be used to create a survey in Qualtrics to meet the unique needs of the research team.

Analysis & Findings

After all the sessions were complete and all interviews and surveys had been recorded, the research team divided up the data to conduct a thematic analysis. The goal of this process was to individually identify and interpret any patterns that emerged from the transcripts, memos, and survey responses before coming together as a whole group to interpret findings together. Across a period of three weeks, the team met to derive conclusions from the data collected. Analyzing the data collected across participant groups uncovered some interesting pain points which were described by both students and staff/faculty groups, albeit in different ways. The research team termed these “friction points” and could clearly articulate the impact these friction points were having for both students and staff/faculty, summarized below:

Friction Point 1: Community and Connection

In this first friction point, students reported a desire for more personalized treatment within the institution. Throughout the co-design focus group sessions and in survey responses, students frequently requested opportunities to connect with faculty and other students to develop relationships, particularly with students and alumni to develop career connections, and with faculty for the purpose of video-based instruction. This friction point was highlighted by staff who pointed out they didn’t know where to refer students when they requested additional academic support when their instructors couldn’t offer real-time connection opportunities and highlighted the lack of social connecting spaces for students to develop their own communities within the institution.

Friction Point 2: Information Sharing and Transparency

Staff frequently pointed out opportunities to better support students through increased collaboration across departments and a desire for more communication of policies and procedures for referring students to different departments at the institution. In one example, a staff member highlighted the consequences for a student who was stuck in a revolving-door scenario of being referred back and forth between two different departments because neither party understood the procedures, leaving the student frustrated. This was reflected in students' wishes for more streamlined support and desire for one-stop-shop types of experiences when interacting with multiple departments.

Friction Point 3: Student Expectations vs. Student Reality

The third friction point the data supported was nebulous at first, but as the research team uncovered additional anecdotes, it became clear there was alignment between what one support staff member termed the "tidal wave of reality" and what students described as challenges adapting to the academic demands of school. Many students reported their excitement around school dwindled after their first classes, and this was corroborated by advisors and other support staff who noticed a widespread decline in enthusiasm from students after they got their first final grades back. It was difficult to pinpoint exactly what may cause this misalignment of what students expect their academic experience to be like and what they experience, and further analysis of the data may be needed to uncover additional insights. This is an area the research team plans to prioritize in future participatory research efforts around first-year student retention.

Pilot Strategies

Recall that the ultimate goal of this phase of the project was to identify possible pilot support strategies to increase the retention of BIPOC and low-income learners into the second year at the partner institution. The study team translated the three friction points into recommendations for intervention to be discussed among the stakeholder team. Some of the recommendations included:

- Developing intentional social connection opportunities for students to learn from advanced students within their program of study and from recent alumni.
- Exploring the impacts of a community of practice model that could increase transparency and collaboration for staff and potentially lead to reduced administrative barriers for students.
- Designing a risk-free first-term experience to allow prospective students to test the experience of school before committing to enrolling long term.

Discussion of Key Learnings from the Research

The goals of this research were lofty and complex. While some key insights have been discussed in their respective sections, this discussion section will serve as a reflective space to share the lessons learned around carrying out participatory research and the challenges the research team encountered when communicating and coordinating responses to unexpected barriers.

With regard to the research outcomes, it is important to understand the findings were certainly not one size fits all. The facilitators recorded many opposing viewpoints. Some students argued vehemently against the suggestion of synchronous video sessions with faculty, but an equally passionate subset of students and faculty agreed that real-time communication could resolve many of the challenges routinely faced in the learning process. Similarly, many staff viewed their jobs as call center representatives and had little interest in understanding or collaborating beyond their immediate team. These mixed results were expected by the research team, but communicating the nuances of participant voices without watering down the recommended pilot initiatives to external stakeholders proved challenging.

The design of the co-design focus group sessions was treated with immense care in the form of time spent thinking through different ways to respectfully engage and elicit deep insights from students, staff, and faculty alike, while paying attention to conducting the research in a systematic and rigorous way. At times it seemed the goals of participatory research and traditional research expectations were at odds and navigating those points of conflict is something researchers need to continue wrestling with for future work in this space. The team discussed ad nauseam how much structure was too much structure while trying to avoid the pitfalls of not providing enough instruction or prompting to encourage productive dialogue.

When facilitating the co-design focus group sessions, the research team operated under the assumption that all students would have a laptop to use for the session because laptops or desktop computers were required by the institution to take classes. However, it was quickly discovered that many students who met the inclusion criteria were using mobile phones as their primary means of accessing school-related platforms and services, including the research session. This made the activities difficult for participants to complete and required adept pivoting on the part of the facilitators to ensure sessions were still productive and achieved the research objectives. Luckily, the time spent engaging deeply with the literature of diversity science, Krause's data equity workshop (2022), and the principles of Design Justice (Costanza-Chock, 2020) provided a strong north star for navigating those moments in real-time.

The process of recruiting the necessary participants for the study was perhaps the most difficult component. As readers may have noticed, the target participation numbers presented in the table above are quite messy. While recruitment was successful in filling the seats for focus groups and interview time slots, when it came to attending the sessions,

conversion rates lagged significantly. This had a domino effect on the co-design focus group sessions, which were designed for 10-15 participants. Actual participation rates were around 3-5 students and 5-7 faculty/staff, despite having full registration. This was similar to participation in interviews; it was very common for interviewees to miss the time they signed up for. Due to constraints of timeline and budget, the research team decided to stop rescheduling synchronous engagements and offer the survey to students who were unable to attend focus groups or interviews instead, which led to an unexpected number of survey responses to analyze and increased time allocated to analysis.

In spite of these challenges, both the research team and stakeholders agreed the sessions were instrumental in shifting longstanding beliefs administrators and other stakeholders held about the desires of students at primarily online institutions.

Conclusion

In summary, despite careful attention to setting appropriate foundations to establish goals and ensure clarity of motivations, this participatory research effort still had its share of significant challenges. The most important finding for the learning designers involved in this study is a greater grasp of what it takes to shift future participatory research projects away from the conventional "transactional" experience and toward the “transformative” experience (McKercher, 2020, p. 17). Students should have had a formal decision-making role on the stakeholder team from the start of this collaborative project, but due to unavoidable yet foreseeable institutional constraints, their input wasn't sought until after the stakeholder team and research team had already made many decisions. The research team suspects this is the fate of many participatory efforts at campuses across the country. While the team acknowledges that some constraints are inevitable, it is important to be clear upfront with stakeholders about what is required to undertake a participatory research project and communicate the tradeoffs when concessions need to be made.

To support a conversation regarding such tradeoffs, Vaughn & Jacquez (2020) provide a model they term “Choice Points” for participatory research which can guide researchers, stakeholders, and participants to areas of opportunity for increased participation of appropriate communities. Their model centers the research process and provides different levels of participation, ranging from “Inform” to “Empower,” along with methods for engaging different groups at each level of participation across all phases of the research process. This is a valuable model that will significantly shape the research team’s approach to future work in this space.

Finally, there are obvious tensions in doing emergent, flexible, student-led work which competes directly with traditional business priorities like deadlines, compensation, return on investment, and other things institutions with financial obligations typically value. It was common throughout this project to encounter questions such as, “Can students really tell us what isn’t working for them?” and “What is the statistical significance of this work?” There was also fear and anxiety about what students may say or request during these engagements when they are empowered to leverage their voices and skills. It is important to name these fears and lean into them. Letting students lead requires intentional disruption of

the typical balance of power in traditional higher education. Otherwise, we will continue reproducing our oppressive systems.

References

Bradbury, H. (2015). *The SAGE handbook of action research.* SAGE Publications Ltd. https://doi.org/10.4135/9781473921290

Baxter, K., Courage, C., & Caine, K. (2015). *Understanding your users: A practical guide to user research methods.* Elsevier Science & Technology.

Creswell, J. & Miller, D. (2000). Determining validity in qualitative inquiry. *Theory into Practice, 39*(3), 124-130.

IDEO. (n.d.). How might we. Design Kit. Retrieved from https://www.designkit.org/methods/how-might-we.html

Krause, H. (2020, July 24). *Introduction to the funding web.* We All Count. Retrieved from https://weallcount.com/2020/07/24/introduction-to-the-funding-web/

Krause, H. (2022, July). *We all count data equity bootcamp.* [Workshop].

Kuniavsky, M., Goodman, E., & Moed, A. (2012). *Observing the user experience: A practitioner's guide to user research* (2nd ed.). Morgan Kaufmann.

LUMA Institute. (2021). *Creative matrix.* LUMA Institute. https://www.luma-institute.com/creative-matrix/

Martin, B. & Hanington, M. (2019). *Universal methods of design.* Rockport.

McKercher, K. A. (2020). Beyond sticky notes. *Doing co-design for Real: Mindsets, Methods, and Movements, 1st Edn. Sydney, NSW: Beyond Sticky Notes*.

Plaut, V. C. (2010). Diversity science: why and how difference makes a difference. *Psychological Inquiry, 21*(2), 77–99. http://www.jstor.org/stable/25704854

Stringer, E. (2013). *Action Research* (4th ed.). SAGE Publications, Inc.

Vaughn, L. M., & Jacquez, F. (2020). Participatory research methods – Choice points in the research process. *Journal of Participatory Research Methods, 1*(1). https://doi.org/10.35844/001c.13244

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[1] A note about the first-year experiences of interest: the research team derived those four particular areas as a result of the discovery research that took place during the 2021-2022 academic year, prior to the phase of work covered in this paper.

Instructors Share Techniques for Teaching with Technology: Faculty Connections and Spotlights

Strang, R.E

Collaboration | Diffusion of Innovations | Peer Learning | Social Learning | Technology-Enhanced Pedagogy

This article describes a collaborative project between instructional designers and faculty members in a California public university. It is based on the idea that faculty possess valuable applied knowledge of how to use technology tools to address instructional needs. The sharing of this knowledge via 'Faculty Spotlights' fosters technology adoption on campuses. Additionally, the process of co-creating spotlights helps instructional designers see how and why instructors apply technology to pedagogy. This understanding allows designers to collaborate with additional instructors more effectively. This paper describes processes for creating and promoting faculty spotlights, along with a description of early project impact and faculty feedback. It attempts to

live its mission, which is to elevate learning from experience.

Introduction

Instructional designers help faculty navigate the overwhelming world of rapidly changing technology. Academic institutions license a variety of tools for faculty to use, while instructional design teams provide significant leadership in spreading awareness and adoption. Instructional designers (IDs) hold information sessions to introduce instructors to tools and offer ongoing support and training. They "reduce the burden and learning curve for faculty SMEs" (Pollard & Kumar, 2022, Roles and Responsibilities section). Faculty who learn to use tools can augment and eventually reinvent their teaching strategies, enhancing student learning (Wild, 2013; Dwyer et al., 1991).

Despite the potential benefits of technology-enhanced pedagogy, many faculty are concerned with negative consequences. Herckis and Smith (2018) found professors perceive the adoption of new technology to entail risks that threaten to diminish student satisfaction, make them look less competent, and take an unknown amount of time to learn and manage. As a result, even the best tools may be used by only a small percentage of faculty.

This article is an instructional designer's report on a project designed to promote faculty peer learning. Its value is in connecting research to practice, and in sharing knowledge learned from implementation. The project described, Faculty Connections, seeks to accomplish two goals. The first is to disseminate best practices in the application of technology to teaching, which encourages tool adoption. The vehicles for diffusion are Faculty Spotlights, case studies wherein instructors give firsthand accounts of how they've used a tool successfully. The second goal is to contribute to IDs' collaborations with faculty. Through viewing and co-creating spotlights, IDs learn from instructors' perspectives, growing their capacity to communicate and collaborate.

Research on innovation diffusion provides detailed insight into factors that promote the spread of new technologies. Perhaps the most influential summary of this literature is provided by Everett Rogers (2003). Rogers argues that in the persuasion stage, adoption depends crucially upon five perceptions of an innovation. Faculty Connections highlights the characteristic of 'compatibility,' which Rogers defines as "the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters" (Rogers, 2003, p. 254). When instructors view spotlights, they see peers describing how a tool is compatible with their needs and contexts. If this need and context are shared by the instructor viewing the spotlight, they are likely to develop positive feelings towards the tool, and potentially adopt it.

Rogers as well as other researchers, emphasize the importance of interpersonal communication. Arthars and Liu (2000) found in a study of faculty adoption of a learning

analytics platform that empathetic interpersonal communication was important for its diffusion. In particular, they find that when communication centers on a particular problem a faculty member has, the more likely it is that they will adopt the technology. Communication can be a persistent problem in designer-instructor collaboration due to the parties having different roles and expertise at work. As Chen and Carliner (2020) note in a literature review of designer-instructor relationships, one barrier to collaboration is unclear communication, in particular when one side uses unfamiliar technical language. By reviewing and co-creating spotlights, designers become more familiar with the culture of the faculty with whom they're collaborating. This added level of connection aids empathetic communication and promotes collaboration.

Project Overview

Faculty spotlights showcase an instructor explaining a strategy they've used and its impacts. These are some spotlights:

Faculty Connections Homepage

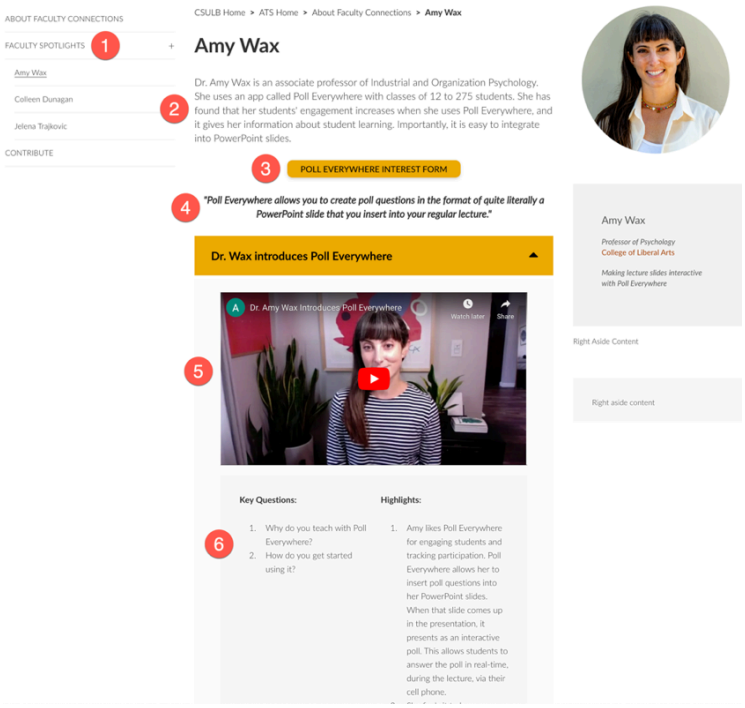
1. Exploring the impact of virtual reality
2. Evaluating learning during lecture: grading student notes
3. Making interactive videos with PlayPosit
4. Equitable grading strategies
5. Making lecture slides interactive with Poll Everywhere
6. Learning from student mistakes with Gradescope

In contrast to the spotlights above, stylistic choices we have decided not to pursue may be of interest. One of these directions is exemplified by An Introduction to Poll Everywhere, because its music and transitions elicit reactions of feeling like a marketing video and not an avenue to share an instructor's experience with the tool.

Spotlights contain interviews of faculty members and can be conducted in written, audio, or video formats. The interview questions are ordered intentionally to help faculty tell a 'story.' They also draw inspiration from innovation-adoption literature by highlighting characteristics of tools like compatibility and trialability. After the interview is edited, a layout is applied and it is developed into a webpage.

Figure 1

Example spotlight



Key:

1. **Navigation menu:** shortcut to view case studies, learn about the project, or contribute.
2. **Bio:** introduces the faculty member, their subject matter, and class size(s). This may help viewers find strategies appropriate to them.
3. **Interest form**: sends a request to speak with the faculty member or an instructional designer
4. **Summary quote**: states the strategy's big idea
5. **Videos:** friendly, concise (~2 minutes) explanations of different aspects of the strategy
6. **Key Questions and Highlights**: summarizes each video

As seen in the key, several of the layout's design choices accommodate viewers' goals. The biggest influence here is the Stanford Graduate School of Education (n.d.). The summary quotes and bite-sized videos in spotlights enable viewers to quickly understand the practice and determine whether they are interested. There is also a call to action: a button that brings the viewer to an interest form. If instructors want to take the next step with support, they fill out the form and are contacted by an instructional designer, facilitating interpersonal communication.

Processes for Creation and Promotion

Creation

The spotlight design process consists of ten steps.

1. Determine specific tools, topics, or themes that designers will target. A more open-ended approach to creating spotlights can work too. Some guidelines for assisting instructors in choosing a practice to present:
2. Develop core interview questions and follow-ups that designers will ask instructors.
3. Develop processes for inviting instructors to contribute. Data from vendors can help determine who uses tools the most ('power-users'). Alternatively, ask instructors for referrals or create a list of faculty with whom designers have good relationships.
4. Now that much of the planning is complete, in the initial reach-out message, designers determine if a faculty member has any baseline interest in contributing to the project. Potential information to include in this message:
5. If initial interest is found, designers' goals now shift from determining baseline interest to making plans for the next steps. Designers and faculty decide on the format of spotlights (i.e. video, audio, or text). These modalities have different advantages and disadvantages:
6. **Video spotlights:** it is advised that instructors write a script. Designers subsequently give feedback and guidance, steering them towards clarity, concreteness, tangible results, and personal experiences. Some faculty members make it clear they're confident without a script, which usually requires the designer to play a more active role in the interview and editing stages.
7. **Text-based spotlights:** like with video-based spotlights, it's advised that instructors write draft responses, which prompt designers to provide feedback and guidance. The goals are to make the needs clear, and the explanation concise, specific, and concrete with examples and observations.
8. After the instructor's portion of the spotlight is filmed, recorded, or written, the team identifies additional assets to include. Examples include screenshots of the tool, supplemental videos, and student testimonials.
9. Now it's time to put everything together. Designers may collaborate with communications and web design specialists. They determine the visual layout of the spotlights and design goals, such as feelings they want to inspire in their audience and help them understand the gist of the content quickly.
10. Lastly, after a spotlight is on the web, the instructor is informed. Over time, the designer may choose to improve the spotlight in various ways. For example, they could add comments from additional instructors who use the tool.

Promotion

I recommend considering the distribution process in terms of at least two types of promotional channels: 1) the instructional design department's channels, and 2) academic departments' channels.

A good step is to promote within the colleges and departments of the faculty who co-create spotlights. Distributing spotlights through academic departments' channels allows designers to customize the content and message to fit that audience. Faculty from the same college might know of, or have heard of, each other and therefore may be more likely to read a peer's spotlight. Promoting within academic colleges also builds valuable bridges with communication specialists.

When looking for additional communication channels, consider the needs of groups of faculty. New instructors may have a need to add to their teaching repertoire because of relatively less teaching experience. Instructors teaching a large course for the first time probably want to learn about practices for that setting. Many faculty who are teaching online, even those who have prior experience, may feel the need because the modality is still relatively new and confusing.

Impact

The Faculty Connections initiative has a number of positive effects. From my perspective as an instruction designer, I will point to its effect on faculty and fellow designers.

Effect on Faculty

Spotlights have been viewed by faculty via an online professional development course about best practices for teaching online. In addition, instructional designers have shared spotlights with faculty directly after a consultation. For example, an instructional designer at my university has sent a link to a spotlight on Poll Everywhere to instructors who currently use iClickers, to give them alternative options.

To learn about how instructors react to spotlights, I have conducted five semi-structured interviews on Zoom (Rosala, 2019). In each interview, I give faculty a hyperlink to the project homepage, where they see spotlights for the first time. They select one they're interested in and explain why, then they review the spotlight and give feedback. To facilitate recruitment, I have reached out to faculty whom I have met before and helped develop their technical and pedagogical skills. The goal of these interviews is not to systematically assess the program, but to gain insight into how the program is working and to suggest potential modifications. The interviews have provided useful feedback from the target audience.

Observation 1: Interviews indicate that the faculty's choices of spotlights are linked with the notion of compatibility. Professors are interested in technologies that are consistent with their existing practices. Three out of five faculty are drawn to the spotlight on PlayPosit, a tool for making interactive videos, since they already used videos in their classes.

> *"I do a lot of video work myself… Making interactive videos and PlayPosit would be pretty cool for me to look at"*

Observation 2: Faculty also choose spotlights on technologies they are already using because they want to see how others are utilizing it. Moreover, they are interested in making contact with the people they read about, supporting the notion that interpersonal communication continues past the persuasion phase of adoption.

> *"we've met people in other departments who are doing it (using virtual reality) but we're very disparate … and (I am) interested in the way that he's using it… I would reach out to him and you know even set up a coffee or something like that because I just want to know what he's doing"*

Observation 3: Faculty choose spotlights about current "hot topics" within their professional circles. In this case, spotlights may satisfy needs like communicating with peers and social pressures. Equitable grading strategies were the topic mentioned most in this light.

> *"I've seen a lot of emails about this (Equitable Grading Strategies) recently… there is a big movement to switching over to a five point scale (an equitable grading strategy)"*

Effect on Instructional Designers

For instructional designers, learning from faculty gives us general principles and innovative practices to pass along to additional instructors. For example, one instructor has contributed a spotlight on an uncommon and effective formative assessment strategy using Gradescope. She systematically grades her students' notes to understand their misconceptions during lectures and uses this information to make decisions like what to review as a class. This technique can be passed along directly to faculty and used as a concrete example of a larger pedagogical principle, data-driven teaching. Instructional designers can even leverage this technique when delivering professional development to faculty.

On a similar note, reading between the lines and understanding the underlying reasons why instructors choose to implement tools in certain ways helps designers see patterns. Knowing these patterns and priorities helps in communicating with instructors in general. An example comes from a spotlight on an instructor who uses the slideware application Poll Everywhere. This application lets her download her polls in the form of PowerPoint slides, which she then inserts into her lecture. Her method fits seamlessly into her class, which is a useful principle for IDs to know when talking with instructors about any new technology tool.

Additional Effects

Faculty Connections and many other initiatives remind ID departments to center faculty perspectives. Instructional designers can learn from faculty perspectives (McDonald et al., 2022). Faculty at my university frequently say their favorite aspects of workshops are faculty-led discussions and knowledge sharing. These reminders can inspire additional projects, and have a cascading effect. For example, my department is currently leading the transition to a new learning management system, and we have recently created a similar video project: early adopters of the LMS create videos on what they like about the new LMS, in an effort to reduce the anxiety of later adopters. The point is not to say that Faculty Connections caused these projects to develop. Rather, I use them as examples that remind us to collaborate with the audiences we seek to impact.

Producing spotlights can also contribute to some degree to the availability of tools on campuses. Spotlights can be used to drive faculty awareness and adoption of tools. Additionally, knowing tools' use cases provides instructional design departments with information that can be used in a number of ways, such as evaluating which to keep under contract.

Finally, making a spotlight can benefit the instructors who make them. First, they have been a source of pride for instructors, especially because a lot of pedagogy simply goes unnoticed by anyone but them and their students. Second, in my experience, they have used this project in their tenure applications, as an example of their contributions to the campus as a whole.

Next Steps

Include Contextual Information: Faculty want to determine similarities and differences between their context and that of the spotlights to establish whether compatibility exists. For example, two aspects of teaching - modality (online vs on-campus, asynchronous, etc) and class size - are markers of compatibility that several faculty asked about in interviews. This makes sense because these factors play a part in determining the challenges and opportunities of a given class. For example, large online classes entail challenges such as evaluating open-ended assessments. Therefore, one next step is to add information about modality and class size into spotlights. However, whether or not to display faculty's departments is an open question because different disciplines may see that as a sign of incompatibility, and thus ignore the strategy.

Create Connections Between Spotlights (Two Strategies): Another step is to explore the creation of spotlight groups centered around common themes and needs. Faculty input is a valuable source for ideating these groups. Separately, another possibility is to include a new section called 'Suggested Spotlights.' This section could preview other potentially relevant spotlights based on one an instructor is interested in or currently reading. This may help broaden the range of spotlights that faculty view.

Facilitate Communication (Two Strategies): Spotlights can help start conversations between designers and instructors. The interest form at the top of each one is a good start, but according to interviews, some faculty don't know where it will go. Therefore, the next step is to add explanatory text about communication opportunities at the top of spotlights. On a different note, a group called 'Instructional Designer's Corner' could be created, which contains spotlights the ID team creates, introducing best practices from our field. The roles and range of expertise of instructional designers are unknown to many faculty (e.g. Pollard & Kumar, 2022). Making our expertise more explicit may facilitate communication.

Incorporate Additional Diffusion Strategies: Factors from diffusion research from multiple authors should be explored and evaluated in the context of this project. Allowing 'trialability' and enabling people to trial a tool could be explored next. This could take multiple forms, such as experiencing the tool from the perspective of a student, or designers setting the tool up for a faculty member inside their course to use in a low-stakes scenario.

Conclusion

This article shares a project wherein faculty share their most effective techniques for teaching with technology. Research on innovation diffusion and allied areas suggests the

value of its approach to not only the adoption of best practices with tools but also in enhancing communication within the linked communities of instructional designers and faculty. This is an important lever for improving the effectiveness of these parties working together.

This project is most successful when instructional designers play an active role. In each step of creating spotlights, designers should take a co-leadership role as creators and guides. For instance, they can come up with creative ways to enhance spotlights, guide faculty, and coordinate with others to distribute the end results to wider audiences. Instructional designers are heavily encouraged to set the direction of collaboration in this project and leverage a range of their skills.

While the program continues to evolve, a range of faculty have indicated through feedback that it plays a useful role. Faculty with varying levels of exposure to a given technology find value, as do those at later developmental stages in the adoption process. Faculty with less experience using technology can search for tools that meet their needs. Faculty with more experience can expand their understanding of a tool by seeing how peers use it, and build their professional networks by contacting each other.

Faculty Connections takes advantage of distinct kinds of knowledge from researchers, designers, instructors, communications specialists, and strategists. There is considerable untapped potential for growing this project by adding the expertise of different individuals, roles, and industries. You can help by contributing links to projects from various fields to Google Drive: Examples of Spotlight Projects.

References

Arthars, N., & Liu., D. Y.-T. (2020). How and why faculty adopt learning analytics. In D. Ifenthaler & D. Gibson (Eds.), *Adoption of Data Analytics in Higher Education Learning and Teaching* (pp. 201-220). Springer International Publishing. https://doi.org/10.1007/BF02766777

Chen, Y., & Carliner, S. (2021). A special SME: An integrative literature review of the relationship between instructional designers and faculty in the design of online courses for higher education. *Performance Improvement Quarterly, 33*(4), 471-495. https://doi.org/10.1002/piq.21339

Dwyer, D. C., Ringstaff, C., & Sandholtz, J. H. (1991). Changes in teachers' beliefs and practices in technology-rich classrooms. *Educational Leadership, 48*(8), 45-52.

Herckis, L. & Smith, J. (2018). *Understanding and overcoming institutional roadblocks to the adoption and use of technology-enhanced learning resources in higher education*. Report submitted to the Carnegie Corporation of New York. April, 2018. https://www.cmu.edu/simon/projects/flagship-projects/barriers-to-tel.html

McDonald, J. K., Elsayed-Ali, S., Bowman, K., & Rogers, A. (2022). Considering what faculty value when working with instructional designers and instructional design teams. *The*

Journal of Applied Instructional Design, 11(3). https://dx.doi.org/10.51869/113/mebr1

Pollard, R. & Kumar, S. (2022). Instructional Designers in Higher Education: Roles, Challenges, and Supports. T*he Journal of Applied Instructional Design, 11*(1). https://dx.doi.org/10.51869/111/rp

Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Free Press.

Rosala, M. (2019, September 13). *The 3 types of user interviews: Structured, semi-structured, and unstructured* (video). Nielsen Norman Group. Retrieved March 23, 2023, from https://www.nngroup.com/videos/3-types-user-interviews/

Stanford Graduate School of Education. (n.d.). *Journeys online: An evolving collection of digital learnings inspired by GSE instructors.* Retrieved Nov 30, 2022, from https://teachingresources.stanford.edu/

Thompson, M., Falck, E., Slama, R., & Reich, J. (2020). The Practice based teacher education engagement ladder: A developmental model of adoption, adaptation, and redesign. *EdArXiv*. https://doi.org/10.35542/osf.io/entjs

Venkatesh, V., & Davis, F. D. (2000). Theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186–204. https://doi.org/10.1287/mnsc.46.2.186.11926

Wild, J. (2013). *OER engagement study: promoting OER reuse among academics* (Author's Original). Retrieved from https://ora.ox.ac.uk/objects/uuid:eca4f8cd-edf5-4b38-a9b0-4dd2d4e59750

Metrics for Assessment of Instructional Design/Course Development Teams

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Assessment Metrics
Institutional Effectiveness
Instructional Design Teams
Instructional Design Units

As higher education institutions expand online education in the wake of the COVID-19 pandemic, instructional design/course development (ID/CD) teams, units, centers or departments are becoming more commonplace. How will calls for higher education accountability, coupled with decreasing fiscal resources, affect these teams when "COVID panic" dies down? Principles of institutional effectiveness can be used in the assessment of ID/CD teams to justify the team's existence, combat the lack of knowledge about instructional designers, and drive continuous improvement. An exploratory study of 76 institutions reveals how and why assessment is currently being done and which metrics should be used to assess ID/CD teams.

Introduction

Among the numerous ways in which the COVID-19 pandemic has impacted higher education has been the expansion of online education, accompanied by an increase in the demand for instructional designers/online course developers (Decherney & Levander, 2020; Garrett, et. al, 2020). A recent annual data report from NC-SARA of more than 2,200 institutions indicated a 93% growth in distance learning enrollments from 2019 to 2020 (NC-SARA, 2021). It was estimated that at least one-half of all instructors who were forced to pivot to online education and emergency remote teaching during the pandemic had no prior experience in developing and teaching online courses (Garrett, et al., 2020).

The effect of the pandemic on instructional designer demand and visibility was immediate (Petherbridge, et al., 2022). Barely one month after the commencement of the COVID-19 crisis, an article titled “The Hottest Job in Higher Education: Instructional Designer” was published by Inside Higher Ed (Decherney & Levander, 2020). As colleges and universities moved from “quick fix” emergency remote teaching into strategically-planned online education (Hodges, et al., 2020), many were hiring multiple instructional designers, organizing them into a team, unit, center or department. As Drysdale (2021) observed, “instructional design teams shifted from a preferred institutional resource to a necessary one” (p. 58). This concept of an instructional design/course development team of instructional designers is distinct from a design team that consists of a single faculty subject matter expert collaborating with a single instructional designer (e.g., Hart, 2020; Hixon, 2008).

Some recent authors have predicted that the market for instructional designers will continue to increase (e.g., Petherbridge, et al., 2022). However, instructional designers report that a lack of knowledge about and respect for their skills and expertise continues to present a barrier to their success (Drysdale, 2018; Hart, 2020; Intentional Futures, 2016). Further, IDs who are located organizationally within individual academic departments, rather than in a centralized team or unit, experience lower job satisfaction and less collegial relationships with faculty (Drysdale, 2018).

In an age where fiscal resources for colleges and universities are continually decreasing, what will happen to instructional design/course development teams (ID/CD teams) when the “COVID scare” dies down and institutions seek to “get back to normal”? How will ID/CD teams be able to demonstrate their value, effectiveness, and dedication to continuous improvement? Answers may be found through principles of assessment and institutional effectiveness.

Institutional Effectiveness

Brint and Clotfelter (2016) identify effectiveness in higher education as “the extent to which and the quality with which an institution achieves [its] expectations” (p. 4). The current emphasis on institutional effectiveness is a result of circumstances that predate the COVID-19 crisis. As Brown (2017) has noted, “Since the late 20th century, colleges and universities have had to respond to persistent calls from multiple social sectors about the expansion of

accountability in American higher education. The increased reporting measures are the result of multiple contextual factors that have influenced the system of higher education. In part, the substantial increases in the cost of obtaining a college education have catalyzed the American public to question the value of a postsecondary degree and to call for greater transparency regarding college outcomes" (p. 41).

The public's call for accountability, transparency, and return on investment has prompted accrediting agencies tasked with quality assurance of higher education to shift their emphases from inputs, such as the quantity of library holdings, to outputs, such as student learning outcomes, student retention, and graduate rates. The Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) was the first of the six regional institutional accrediting agencies to embrace the concept of institutional effectiveness; however, the other five soon followed suit (Ewell, 2011). SACSCOC Accreditation Standard 8.2 defines institutional effectiveness as "The institution identifies expected outcomes, assesses the extent to which it achieves these outcomes, and provides evidence of seeking improvement based on analysis of the results" (Southern Association of Colleges and Schools, 2018, p. 73). All academic discipline units (e.g., colleges, schools, departments), administrative support units, and academic support units within an institution, are required to demonstrate compliance with this standard.

Institutional effectiveness, with its iterative process of objectives formulation, assessment, implementation, and continuous improvement, is reminiscent of systematic instructional design models familiar to instructional designers (Bond & Dirken, 2020; Branch & Dousay, 2015; Wiley, et al., 2020). As an academic support unit, an ID/CD team could utilize the institutional effectiveness process to educate leadership in what IDs do, establish the team's role and value to the institution, and provide a mechanism for implementing continuous improvement of the team.

Assessing ID/CD Teams

Martin and Kumar (2018) state that "Quality assurance is a systematic approach to check whether online learning meets specific requirements based on a set of standards and frameworks" (p. 272). This is often much easier said than done, as institutional effectiveness is one of the most often-cited areas of weakness identified during the accreditation process (Higher Learning Commission, 2022; Southern Association of Colleges and Schools, 2020). "The increasing focus of external entities on the effectiveness of higher education institutions makes it more important than ever to monitor how well the institutional effectiveness role is being carried out at institutions" (Clapp, 2020, p. 6). So, what is the best way to assess the effectiveness of ID/CD Teams?

The good news is that there is a robust set of rubrics and standards for the evaluation of instructional design and instructional designers. The not-so-good news is that, while Quality Matters Rubric (Quality Matters, 2020), the Online Learning Consortium Scorecards (Online Learning Consortium, 2022; Shelton, 2010), the AECT Instructional Design Standards for Distance Learning (Piña, 2017), California State University Chico's Rubric for Online Instruction (California State University Chico, 2022), and Blackboard's Exemplary Course Rubric (Blackboard, 2022) each provide useful metrics for assessing the quality of online

courses, they lack metrics and guidance for assessing the teams that create the courses. Similarly, the International Board of Standards for Training, Performance and Instruction (ibstpi®) has identified 22 competencies that can be used for training and assessment of individual instructional designers (Kozalka, et al., 2013), but these competencies provide little application for the assessment of ID/CD teams.

Which Metrics to Use?

As Brint and Clotfelter (2016) have observed, "Usable metrics for assessing effectiveness remain aspiration more often than reality" (p.4). This may explain why institutional effectiveness has been such a challenging accreditation standard for so many institutions. A recent search of EBSCO databases, Google Scholar, and several journals in the fields of instructional design, educational technology, and online education, failed to find any publications addressing how to assess the effectiveness of instructional design and/or course development teams, units, centers, or departments.

Collaboration with ID/CD Teams

While individual faculty may develop online courses by themselves, ID/CD teams work via collaborations (Hixon, 2008). The collaborators may include administrators, academic department chairs, librarians, or other professionals, but at the very least, involve an instructional designer collaborating with a subject matter expert (Bawa & Watson, 2017; George & Casey, 2020). While the nature of the collaboration depends upon the needs and culture of the institution (Piña, 2021), it is clear that the success of the development project is dependent upon the success of the collaboration (Reinig, 2003).

Suárez-Lantarón and her colleagues (2023) emphasized the necessity for academic service units to assess the satisfaction of their key constituents in order to determine whether their needs were being met. The key constituents for ID/CD teams include faculty/subject matter experts, administrators and students (Bawa & Watson, 2017; Hixon). Reinig (2003) identified both the product and the process of collaboration as necessary and understudied elements of collaborative development.

Identifying Metrics

An online search was conducted to identify higher education institutions that have made assessment reports and guides for their academic support units publicly available on their websites. Reports and guides from 15 institutions were obtained:

Table1

Institutions with Reports and Guides Listing Assessment Metrics

- Arkansas Tech University
- Caldwell Community College and Technical Institute
- California University of Pennsylvania
- Miami University of Ohio
- New Mexico State University
- Northern Illinois University

- Eastern Kentucky University
- Florida State University
- Jackson State University
- LaGuardia Community College
- Savannah State University
- Sullivan University
- Texas A & M University
- University of Louisville
- University of North Carolina at Chapel Hill

Analysis of these assessment reports and guides identified two broad areas for assessment: 1) collaboration and constituent satisfaction and 2) activities undertaken and recognition received by the team. Table 2 provides possible metrics for assessing ID/CD teams in these two categories.

Table 2

Possible metrics for assessing ID/CD teams

Category	Assessment Metric
Collaboration/ Constituent Satisfaction	Faculty/SME satisfaction with course development process
	Faculty satisfaction with consultancy/support/training Faculty satisfaction with courses
	Student satisfaction with courses
	Academic leadership satisfaction with courses
	Advisory council satisfaction with courses
Activities	Courses developed/modified by the team
	Courses evaluated by the team
	Training events provided by the team
	Consultancy sessions provided by the team
	Faculty support sessions provided by the team
	Awards received
	Conference presentations
	Publications

How Assessment of ID/CD Teams is Being Done

Assessment reports and guides for academic support units may provide hints and possible directions for instructional design professionals and academic leaders to pursue in assessing ID/CD teams. However, the relative silence of the literature on how ID/CD teams are being assessed—or if, in fact, they are being assessed at all–limits the ability to apply institutional effectiveness principles for the benefit of these teams. Therefore, an exploratory study was devised to determine whether assessment of ID/CD teams was occurring and, if so, which metrics are and should be used. The following research questions were explored:

- What is the organization structure for instructional designers?
- What is the frequency and rationale for assessment of ID/CD teams?
- Which metrics are used for assessing ID/CD teams?
- Which metrics would be the most effective for assessing ID/CD teams?

Methodology

Participants

Participants included instructional design/educational technology professionals at 76 higher learning institutions in the United States. Table 3 below identifies the characteristics of the participants' institutions. Nearly two-thirds of participants came from public institutions. Institutions varied by enrollment, with almost half coming from institutions with enrollments of more than 20,000. The vast majority of participants' institutions awarded graduate degrees.

Table 3

Institutional characteristics (n=76)

Characteristic	Number	Percentage
Institutional Control		
Public	50	66%
Private	26	34%
Enrollment		
Less than 3,000	9	12%
3,000-10,000	18	24%
10,000-20,000	13	17%

More than 20,000	36	47%
Level		
Undergraduate	9	12%
Graduate	67	88%

Data Collection and Analysis

The study and instrumentation were reviewed and approved by the Institutional Review Board of the sponsoring university. A custom survey instrument was developed and formative evaluations of the validity of the survey items were conducted with 10 members of a statewide distance learning directors' group and with 12 participants at the 2022 Distance Learning Administration Conference. The validity of the survey was affirmed, with minor modifications to the wording of three survey items. The final survey items are listed in Table 4 below. The survey was distributed by the Association for Educational Communications and Technology (AECT) to its membership via an email link to the online survey. Data were analyzed using descriptive statistics.

Table 4

Survey items

Please tell us about your institution: Highest degree awarded (select one)

- Undergraduate degree
- Graduate degree

Please tell us about your institution: Control

- Private
- Public

Please tell us about your institution: Student enrollment

- Less than 3,000
- 3,000-10,000
- 10,001-20,000
- More than 20,000

How many instructional designers does your institution employ? (select one)

- 1

- 2-4
- 5-7
- 8-10
- More than 10

Please describe how instructional designers are organized at your institution. (select one)

- Centralized ID Unit (instructional designers reside in a single unit, team, center or department for the entire institution)
- Decentralized (instructional designers are dispersed across multiple colleges, schools or academic departments)
- Hybrid (some instructional designers in a central unit, while others are dispersed)
- Other (please specify)

Describe whether/how often your ID unit (as a whole, not its individual employees) undergoes an assessment/evaluation process. (select one)

- The ID Unit as a whole is not formally assessed/evaluated (skip the next two questions)
- The ID Unit is assessed/evaluated at least once per year
- The ID Unit is assessed/evaluated every 2-3 years
- Other (please specify)

What is the purpose for the assessment? (select all that apply)

- Provide data/evidence for accreditation or other outside compliance
- Provide data/evidence for implementing ID unit improvements
- Provide data to justify the ID unit's staffing or existence
- Other (please specify)

Which metrics are used to assess the ID Unit(s) at your institution? (select all that apply)
4-critical 3-useful 2-minimal 1-not helpful

- Academic department (dean/chair) satisfaction with courses
- Faculty/subject matter expert satisfaction with course development process
- Faculty/subject matter expert satisfaction with training/consultancy
- ID unit scholarly activities (publications, presentations, grants, etc.)
- Instructor satisfaction with course quality
- Student satisfaction with course quality
- Number of courses created

- Other (please specify)

Which metrics would be the most effective to assess an ID Unit?
4-critical 3-useful 2-minimal 1-not helpful

- Academic department (dean/chair) satisfaction with course quality
- Faculty/subject matter expert satisfaction with course development process
- Faculty/subject matter expert satisfaction with training/consultancy
- ID unit scholarly activities (publications, presentations, grants, etc.)
- Instructor satisfaction with course quality
- Student satisfaction with course quality
- Number of courses created
- Other (please specify)

Please describe any additional metrics not mentioned above

Results

Organizational Structure

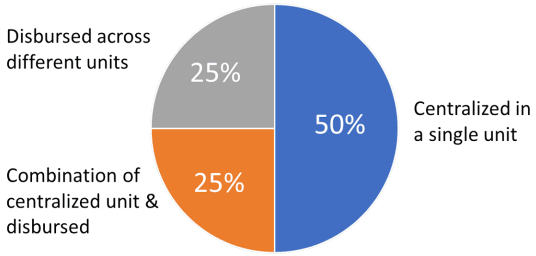
As Reid (2018) has observed, instructional designers in higher education institutions may be organized within a centralized instructional design/course development unit; they may be decentralized (e.g., instructional designers employed by and operate exclusively within a specific academic college, school, or departments). Institutions may also employ a combination of both models. Andrade (2016) acknowledged that decentralized organizations may appeal to those prioritizing departmental control of the online course development process. However, distance education experts have maintained that centralized and formalized online instructional design and course development results in online courses that are of overall better quality, consistency, and cost-effectiveness (e.g., Andrade, 2016; Cini & Pineas, 2018; Scheuermann, 2018). Drysdale (2018, 2021) found notable differences in the job experience and job satisfaction of centralized versus decentralized instructional designers, with the latter reporting a significantly less satisfying and effective work environment, non-collegial relationships with faculty and “pressure to focus on technology support instead of pedagogy and course design” (2021, p. 72).

Figure 1 below shows that half of the respondents’ institutions organized their instructional designers within a centralized ID/CD team that can service the entire institution, with the other half evenly split between 1) decentralized and dispersed instructional designers and 2) a combination where some instructional designers reside in a centralized team, while others

were dispersed in units throughout the institution. This distribution is similar to that found by Fong, et al. (2017).

Figure 1

How Instructional Designers are Organized (n=76)

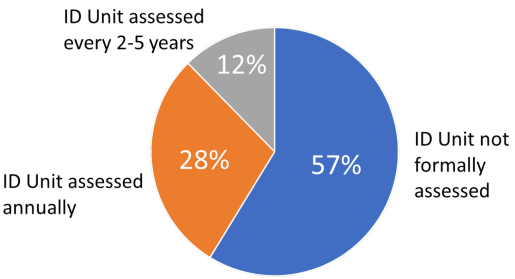


Frequency of Assessment

To determine the extent to which assessment of ID/CD teams was occurring at participants' institutions, they were asked to specify how often ID/CD teams underwent a formal evaluation process. As indicated in Figure 2, The majority (57%) of institutions did not have a known formal assessment of their ID/CD teams. Of the remaining institutions, 28% assessed their ID/CD team on an annual basis, while 12% did so at intervals ranging from two to five years. The organizational structure did make a difference regarding whether assessment was taking place, with 50% of institutions with centralized ID/CD teams conducting assessments of the teams, compared to 17% of those with decentralized instructional designers and 39% of those with a combination of centralized and decentralized.

Figure 2

Assessment of Instructional Design Units (n=76)



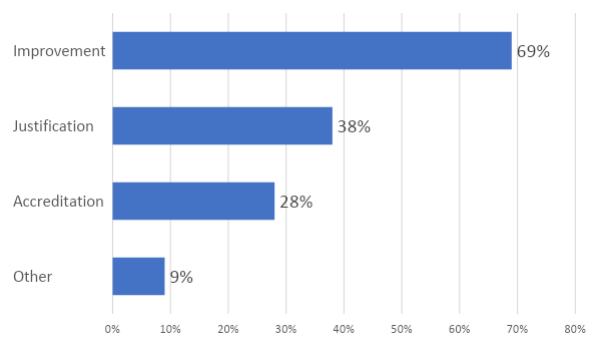
Rationale for Assessment

For those institutions that conducted formal assessments of their ID/CD teams, participants were asked to identify one or more purposes underlying the assessments. Results are shown in Figure 3. The most frequently cited rationale for assessment (69% of respondents) was to use the assessment results as the basis for implementing improvements to the

ID/CD team. Using assessment data to justify the continued need for the ID/CD team was indicated by 38% of respondents, while providing data for accreditation purposes was identified by 28%. Other identified purposes for assessment (9%) included annual reporting to internal departments within the institution.

Figure 3

Rationale for Assessment of Instructional Design Units (n=32)



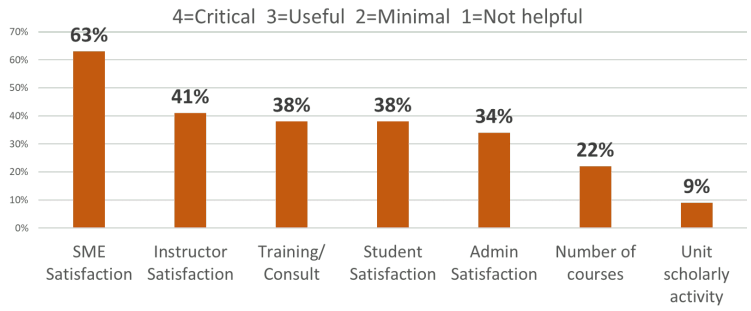
Metrics Used Currently

The primary purpose for this study was to identify metrics for assessing the effectiveness of ID/CD teams. Therefore, participants were asked to identify the metrics currently used by their institutions for this purpose. Results displayed in Figure 4 reveal that the most commonly used metric (68% of respondents) was to gauge the satisfaction of faculty/subject matter experts (SME) with the course development process--the item most directly related to the quality of the collaboration between the SME and the ID/CD team.

Next in frequency (41%) was instructor satisfaction with the course design quality. This would include instructors who were teaching the course, but who may not have been directly involved in the initial course development. Faculty satisfaction with the ID/CD team's training and consulting services, along with student satisfaction with the course design quality, were utilized by 38% of respondents' institutions, while administrator (e.g., chair, dean) satisfaction with the course design quality fared slightly lower at 34%. The most quantitatively-based measures—the number of courses created by the team and scholarly activity by the team--were used much less frequently (22% and 9% respectively).

Figure 4

Metrics Used Currently to Assess ID Units (n=35)

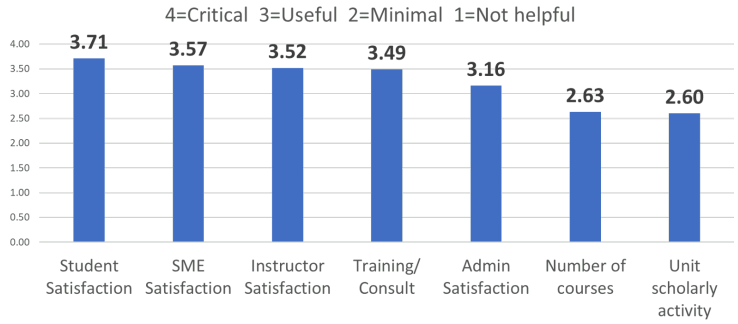


Effective Assessment Metrics

Apart from the metrics being used currently at their institutions, participants were asked to identify those metrics that they determined would be the most useful and effective for assessing ID/CD teams. The responses, shown in Figure 5 below, indicate agreement between current practice indicated in Figure 4 above--with one notable exception. Respondents rated student satisfaction with online course design quality as the most desirable metric with which to gauge ID/CD team effectiveness, with all other metrics following the same order as their current usage by institutions.

Figure 5

Most Effective Metrics for Assessing ID Units (n=76)



Other Metrics

Participants identified additional metrics beyond those listed above. These included: subsequent student achievement of learning outcomes, retention, and graduation rates (5); cost effectiveness/return on investment (3); ability of courses to pass a Quality Matters or other external review (3); speed of course development (2) and competence of instructional designers with legal aspects of course development, such as accessibility, copyright and privacy (1).

Discussion

The goal of this study was to address the lack of published metrics for assessing instructional design/course development teams/units/centers/departments (ID/CD teams).

Institutional effectiveness, with its emphasis on outcomes, assessment, implementation, and continuous improvement, was selected as a framework due to its compatibility with systematic instructional design.

Assessment of ID/CD Teams Not Common

The first significant finding was that less than half of the participants' institutions engaged in a formal process of assessment for ID/CD teams. In an era of increasing calls for accountability, data-driven decision-making, and the threat of diminishing resources, this situation could leave ID/CD teams without the data that they need to gauge their effectiveness, identify areas for improvement, combat ignorance regarding what instructional designers do, and justify the continued existence of the ID/CD team. This situation is even more acute in institutions where instructional designers are decentralized. Those colleges and universities that do engage in formal ID/CD team assessment tend to follow annual institutional assessment cycles or longer cycles associated with accreditation timetables (Southern Association of Colleges and Schools, 2018).

Collaboration

Results of this study indicate that collaboration and constituent satisfaction are both the most commonly utilized and most desirable metrics by respondents and their institutions. Slaughter & Murtaugh (2018) recommended constituent surveys to identify strengths and weaknesses in the course development process. Under the institutional effectiveness paradigm, ID/CD teams are assessed as academic support units, with metrics involving constituent satisfaction of students, faculty, subject matter experts, and administrators being both the most utilized and the most recommended by participants.

Discipline and Orientation of Participants

The only notable difference between currently utilized metrics and those recommended by the study participants was the relative placement of student satisfaction with course quality in the ranking of metrics. As instructional design begins with concerns about what learners will need to know and be able to do at the conclusion of the instruction, it is not surprising that the instructional design and distance learning professionals who participated in this study would prioritize learner satisfaction above faculty satisfaction.

The discipline and orientation of this study's participants may have also influenced the rationale given for assessing ID/CD teams. That instructional design and distance education professionals would consider assessment data to drive ID/CD team's continual improvement as more important than meeting accreditation requirements is not surprising. It is possible, however, that many administrators would reverse that order of importance.

Finally, it should be noted that an ID/CD team's role as a support center does not mean that instructional designers must take a subordinate role to faculty in the course development process. Instructional designers should be empowered to exercise leadership, and project management and serve as collaborators and partners with faculty subject matter experts (Ashbaugh, 2013).

Institutional Effectiveness and Driving Improvements

A critical component of institutional effectiveness is that assessment data must drive improvement efforts (Britt & Clotfelter, 2016; Southern Association of Colleges and Schools, 2018). In order for this to occur, the data must be able to be influenced directly by actions taken by the party being assessed. In the case of ID/CD teams, metrics that involve student outcomes, such as final grades, retention, and graduation rates, are influenced by many extraneous factors that are outside of the direct control and influence of instructional designers. Therefore, it may be unclear which changes an instructional designer could make to cause significant differences in these metrics.

The same situation may occur if an ID/CD team is assessed based on the number of courses that they develop and if this metric is controlled by the amount of demand from academic departments, schools, or colleges. Needs for course development can wax and wane, depending on whether new degree programs are being planned or whether temporary situations, such as COVID-19, cause a spike in online course developments.

Implications for Applied Instructional Design Leadership and Management

The results of this study can be applied by instructional design leadership to determine data-driven metrics that can be used to:

- Assess the effectiveness, strengths and challenges of ID/CD teams
- Identify areas to drive continuous improvement efforts
- Focus and prioritize ID/CD team efforts and activities
- Help inform others at the institution about what instructional designers do
- Provide justification for the continued existence and staffing of ID teams.

The results of this study were used by the ID/CD team at the sponsoring institution to formulate outcomes and to determine how those outcomes would be assessed. Instruments were created for administration to students and instructors during the first term after a course had been newly developed or had undergone a major redevelopment. Table 5 lists outcomes and assessment instruments and when administered. Table 6 lists the items for the Student Survey for First-Term Courses and Table 7 lists the items for the Instructor Survey for First-Term Courses. Table 8 lists the items for the Course Development Process Survey administered to faculty subject matter experts at the completion of the course development process.

Table 5

ID/CD Team Outcomes and Assessment

Outcome	Assessment of Outcome	Assessment Completed By
Develop courses that meet university standards and meet student needs	Student Survey for First-Term Courses	Students during the initial course offering
Develop courses that meet university standards and meet student and instructor needs	Instructor Survey for First-Term Courses	Instructors during the initial course offering
Utilize an effective course development process	Course Development Process Survey	Subject Matter Expert at the end of course development

Table 6

Student Survey Items

- This course used enough resources like videos, websites or activities to enhance my learning experience.
- The lesson's instructional materials (readings, videos, links, activities, etc.) prepared me for my assignments.
- The assignments (papers, projects, labs, etc.) were appropriate for the lesson topics.
- The quizzes/tests/exams were appropriate for the lesson topics.
- The online discussions helped me to understand the lesson topics.
- Instructions provided for assignments were clear and easy to understand.
- Links to outside materials worked as they should.
- The course was free of typos and grammatical errors.

Table 7

Faculty Survey Items

- The individual lesson objectives were adequately assessed.
- Content in this course was relevant to the topic of the course.
- This course used adequate resources like videos, websites, or games to enhance the educational experience.

- The assignments stimulated critical thinking appropriate to the level of the course.
- Instructions provided for assignments were clear.
- Links to outside material/multimedia were functional.
- The course was free of typos and grammatical errors.

Table 8

Subject Matter Expert Survey

- I was satisfied with the level of collaboration, communication and support I received from my ID and the ID Team during the development process.
- I found the weekly content templates and materials provided by the ID Team to be useful.
- I found the SME training course to be useful.
- I found the SME online resources provided at the SME website to be useful.

Limitations and Future Research

Due to the lack of prior studies in this area, the research and scope of this exploratory study were limited to those teams or units dedicated to instructional design/online course development. As these teams are often housed within larger units, such as a center for teaching and learning, a center for professional development, or within an institution's academic technology or information technology department, a future study may examine how these larger units are assessed and how instructional design/course development operates and is assessed within these units.

Collaboration is a vital part of the ID/CD team's work. This study focused most on the faculty/subject matter expert's collaboration with the assigned instructional designer and ID Team. Future studies can explore in greater detail the interactions between the ID/CD team and department chairs, deans, and other administrators.

While this study indicates that ID/CD team assessment occurs more frequently when instructional designers are centralized, current research on centralized versus decentralized instructional design and instructional designers is limited. More studies on how instructional designers are organized and the results of different organizational structures on instructional designers and the instructional design process are needed.

The requirements of the granting institution's IRB regarding participant anonymity made it not possible to capture information that could reveal participants' identities. In order to limit

the possibility of an institution having more than one participant, the survey responses were analyzed for duplicate answers. While none were found, it cannot be said with 100% certainty that no institution had more than one respondent.

Finally, it is likely that the makeup of this study's participants—instructional design and distance education professionals—influenced the rationale for assessment and the ranking of assessment metrics. Future studies could include comparisons with rationales and ranking by administrators, faculty, and students.

Conclusion

Although total higher education enrollments and higher education funding have been in decline for the past decade, online enrollments show no signs of abating. The number of fully online and hybrid and HyFlex programs will continue to grow, necessitating the talents of instructional designers and instructional design/course development teams. At the same time, calls for higher education accountability, transparency, and return on investment, prevalent throughout the new millennium, will grow ever louder. These voices will fuel demand for ways to justify, assess, and improve operations at colleges and universities and those teams, units, centers, and departments that provide those functions, resources and services. Failure to do so may result in those functions, resources, and services being seen as optional, expendable, or–at worst–superfluous.

Instructional design/course development teams, being a lesser-known and often misunderstood part of an institution, are particularly vulnerable to changes in fiscal dynamics and leadership priorities. Assessment of instructional design/course development teams ties these teams to the larger institutional effectiveness and accreditation activities of a college or university, provides data that can be used to justify the ID/CD team's existence, combats the lack of knowledge about instructional design and instructional designers, and promotes continuous improvement.

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References

Andrade, M. S. (2016). Effective organizational structures and processes: Addressing issues of change. *New Directions for Higher Education, 173*, 31–42.

Ashbaugh, M. L. (2013). Expert instructional designer voices: Leadership competencies critical to global practice and quality online learning designs. *Quarterly Review of Distance Education, 14*(2), 97-118.

Bawa, P., & Watson, S. (2017). The chameleon characteristics: A phenomenological study of instructional designer, faculty and administrator perceptions of collaborative instructional design environments. *Qualitative Report, 22*(9), 2334-2355.

Blackboard. (2022). *Are your courses exemplary?* https://www.blackboard.com/resources/are-your-courses-exemplary

Bond, J., & Dirkin, K. (2020). What models are instructional designers using today? *The Journal of Applied Instructional Design, 9*(2).

Branch, R. M., & Dousay, T. A. (2015). Survey of instructional design models. *Association for Educational Communications and Technology*.

Brint, S., & Clotfelter, C. T. (2016). U.S. higher education effectiveness. *RSF: The Russell Sage Foundation Journal of the Social Sciences, 2*(1), 2-37.

Brown, J. T. (2017). The seven silos of accountability in higher education: Systematizing Multiple Logics and Fields. *Research & Practice in Assessment, 17*(1), 41-58.

California State University Chico. (2022). *Exemplary online instruction: The rubric*. https://www.csuchico.edu/eoi/rubric.shtml

Cini, M. A., & Pineas, M. (2018). Scaling online learning: Critical decisions for e-learning leaders. In A. A. Piña, V. L. Lowell & B. R. Harris (Eds.), *Leading and managing e-learning: What the e-learning leader needs to know* (pp. 305-320). Springer.

Clapp, M. (2020). Assessing the efficacy of an institutional effectiveness unit. *Assessment Update, 32*(3), 6-13.

Decherney, P., & Levander, C. (2020). The hottest job in higher education: Instructional designer. *Inside Higher Ed*. https://www.insidehighered.com/digital-learning/blogs/education-time-corona/hottest-job-higher-education-instructional-designer

Drysdale, J. (2018). The organizational structures of instructional design teams in higher education: A multiple case study. *Digital Commons @ ACU, Electronic Theses and Dissertations*. Paper 115.

Drysdale, J. (2021). The story is in the structure: A multi-case study of instructional design teams. *Online Learning, 25*(3), 57-80.

Ewell, P. (2011). Accountability and institutional effectiveness in the community college. *New Directions for Community Colleges, 2011*(3), 23-36.

Fong, J., Uranis, J., Edward, M., Funk, C., Magruder, E., & Thurston, T. (2017). *Instructional design and technology teams: Work experience and professional development. UPCEA*. http://upcea.edu/IDResearch

Garrett, R., Legon, R., Fredericksen, E. E., & Simunich, B. (2020). *CHLOE 5: The pivot to remote teaching in spring 2020 and its impact, the changing landscape of online education, 2020*. http://qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-project

George, K., & Casey, A. M. (2020). Collaboration between library, faculty, and instructional design to increase all open educational resources for curriculum development and delivery. *Reference Librarian, 61*(2), 97-112.

Hart, J. (2020). Importance of instructional designers in online higher education. *The Journal of Applied Instructional Design, 9*(2).

Higher Learning Commissions. (2020). *HLC membership by the numbers: Key findings of the application of the criteria for accreditation.* https://download.hlcommission.org/initiatives/BytheNumbers_CriteriaforAccreditation.pdf

Hixon, E. (2008). Team-based online course development: A case study of collaboration models. *Online Journal of Distance Learning Administration, 11*(4).

Hodges, C. B., Moore, S., Lockee, B. B., Trust, T., & Bond, M. A. (2020). The difference between emergency remote teaching and online learning. *EDUCAUSE Review*. https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning

Intentional Futures. (2016). Instructional design in higher education: A report on the role, workflow, and experience of instructional designers. https://intentionalfutures.com/work/instructional-design

Kozalka, T. A., Russ-Eft, D. F., & Reiser, R. A. (2013). *Instructional designer competencies: The standards* (4th. Ed.). Information Age Publishing.

Martin, F., & Kumar, S. (2018). Frameworks for assessing and evaluating e-learning courses and programs. In A. A. Piña, V. L. Lowell & B. R. Harris (Eds.), *Leading and managing e-learning: What the e-learning leader needs to know* (pp. 271-280). Springer.

Moore, S., Trust, T., Lockee, B., Bond, M. A., & Hodges, C. (2021). One year later... and counting: Reflections on emergency remote teaching and online learning. *EDUCAUSE Review*. https://er.educause.edu/articles/2021/11/one-year-later-and-counting-reflections-on-emergency-remote-teaching-and-online-learning

NC-SARA. (2021). NC-SARA annual data report: Technical report for fall 2020 exclusively distance education enrollment & 2020 out-of-state learning placements. https://nc-sara.org/sites/default/files/files/2021-10/NC-SARA_2020_Data_Report_PUBLISH_19Oct21.pdf

Newsome, M. L., Piña, A. A., Mollazehi, M., Ali-Ali, K., & Alshaboul, Y. (2022). The effect of learners' sex and stem/non-stem majors on remote learning: A national study of undergraduates in Qatar. *Electronic Journal of e-Learning, 20*(4), 360-373.

Online Learning Consortium. (2022). *OLC quality scorecard suite*. https://onlinelearningconsortium.org/consult/olc-quality-scorecard-suite

Petherbridge, D., Bartlett, M., White, J., & Chapman, D. (2022). The Disruption to the practice of instructional design during COVID-19. *The Journal of Applied Instructional Design, 11*(2).

Piña, A. A. (2017). Instructional design standards for distance learning. *Association for Educational Communications and Technology*.

Piña, A. A. (2021). Managing the course development process. In L. D. Cifuentes (Ed.), *A Guide to Administering Distance Learning* (pp. 141-173). Brill Publishing.

Quality Matters. (2020). *Specific review standards from the QM higher education rubric, sixth edition*. https://www.qualitymatters.org/qa-resources/rubric-standards/higher-ed-rubric

Reid, P. (2018). EdTechs and instructional designers: What's the difference? *Educause Review*. https://er.educause.edu/articles/2018/12/edtechs-and-instructional-designerswhats-the-difference

Reinig, B. A. (2003). Toward an understanding of satisfaction with the products and outcomes of teamwork. *Journal of Management Information Systems, 19*(4), 65-83.

Scheuermann, B. (2018). *Ensuring success in online programs by centralizing support.* https://evolllution.com/managing-institution/operations_efficiency/ensuring-success-in-online-programs-by-centralizing-support

Shelton, K. (2010). A quality scorecard for the administration of online education programs: A Delphi study. *Journal of Asynchronous Learning Networks, 14*(4), 36-62.

Slaughter, D. S., & Murtaugh, M. C. (2018). Collaborative management of the e-learning design and development process. In A. A. Piña, V. L. Lowell & B. R. Harris (Eds.), *Leading and managing e-learning: What the e-learning leader needs to know* (pp. 253-270). Springer.

Southern Association for Colleges and Schools. (2018). *Resource manual for the principles of accreditation: Foundations for quality enhancement.* Southern Association for Colleges and Schools Commission on Colleges. https://sacscoc.org/pdf/2018%20POA%20Resource%20Manual.pdf

Southern Association for Colleges and Schools. (2020). *Most frequently cited principles in decennial reaffirmation reviews: Class of 2020*. Southern Association for Colleges and Schools Commission on Colleges. https://sacscoc.org/app/uploads/2022/03/Most-Frequently-Cited-Principles_2020_web.pdf

Suárez-Lantarón, B., Castillo-Reche, I. S., & López-Medialdea, A. (2023). Development and validation of a measuring instrument for the improvement of university guidance and tutoring. *Social Sciences, 12*(2), 56-71.

Wiley, D., Strader, R., & Bodily, R. (2020). Continuous improvement of instructional materials. In J. K. McDonald & R. E. West (Eds.), *Design for Learning: Principles, Processes, and Praxis*. EdTech Books. https://edtechbooks.org/id/continuous_improvement

The Discourse of Collaboration in Instructional Design

Bevins, K. & Howard, C.

Co-Design
Collaborative Design
design decisions
Design discourse
discourse analysis
Instructional Design
professional designers

We examined collaboration via the discourse of Instructional Designers (IDs) actively engaged in co-design. Discourse is language-in-use within a specific community as opposed to abstract notions of how words might fall together by more general rules of grammar and semantics. An analysis of discourse in a community of practice is a direct observation of the meaning-making process employed by members of that community. We collected and analyzed five audio recordings from Collaborative Project Meetings (CPM) among teams of IDs and clients to determine the types of design expertise that comprised the discourse of collaboration. Several findings from this study shed light on how instructional design benefits from

collaborative strategies such as co-design. The content analysis revealed that the most prominent type of design discourse used by IDs was problem-solving, followed closely by discourse surrounding tools, and user experience; however other dynamics, such as gender balance and the presence of multiple instructional designers correlated with differences in instructional solutions.

Introduction

Collaboration is ubiquitous in the field of Instructional Design and Technology (IDT). In the book *The Job*, Ellen Ruppel Shell argues that relationships and collaboration make life meaningful in modern work (2018). Collaborations are realized in discourse; thus, understanding the granular content of exchanges provides a window through which we can access how meaning is made (Gee, 2014). From the perspective of IDT managers and practitioners, good collaboration is the most valuable skill a designer can have (Howard & Benedicks, 2019). These ideas led us to our study.

Previous studies have called for a closer inspection of the language of collaboration in IDT (Boling & Gray, 2015; Gibbons, 2013). However, a close inspection of practitioner language has been overshadowed by larger debates. Such debates include a paradigm shift from a deterministic view of the process model to a more nuanced view of the designer, including one where the designer employs precedent as the driving force behind the act of designing (Boling & Gray 2018) or another view where the designer functions iteratively in situ, through reflections-in-action processes (Tracey, Baaki, Bidhrani, & Shah, 2021). These approaches are more thematic and global, whereas discourse analysis is more granular and emerges not thematically, but from a set of previously studied expertise-based discourses (Bevins & Howard, 2020).

We investigated professional instructional designers (IDs) working at a large research-one (R1) university who were actively engaged in co-design with clients and other IDs. To understand how these instructional designers made meaning through their collaborations, we collected client-ID recordings and analyzed the discourse that emerged. We wanted a specific IDT lens to view the discourse, as opposed to a grounded theory approach which might be overly customized to the specific design tasks, so we employed a previously published taxonomy of design discourse that had been tailored to IDT discursive practices (Howard & Bevins, 2020). We transcribed, scrubbed and coded the sample according to the types of discourses in the taxonomy. The juxtaposition of discourses between the two speaker roles (client discourse versus designer discourse) illuminated how the designers

were making meaning in their practice. Some long-held beliefs in IDT were confirmed with empirical evidence, and in other cases, findings suggested new paths to design solutions. We also investigated these interactions by gender and found evidence supporting mixed-gender teams. The study design combined lenses from previous literature in design, IDT, and discourse analysis.

Literature Review

While the lay press may make claims concerning the value of collaboration, and that it is increasing in the broader workplace (Shell, 2018), we looked to the literature within the design disciplines, and instructional design specifically, to guide our study and analysis of language in use among practicing designers. In support of this perspective were voices criticizing the commonly accepted conception of how ID work is accomplished and calling for studies that examine actual practice (Boling & Gray, 2018; Gibbons, 2013; Gray et al., 2015: Rowland, 1992).

Collaboration in IDT has been approached primarily from lenses concerned with the efficacy of design solutions and the future success of IDs. Studies have focused on the effectiveness of collaboration between IDs and faculty members (Olesova & Campbell, 2019; Richardson et al., 2019), on the communication and relationship-building skills necessary to excel in an IDT position in higher education (Ritzhaupt & Kumar, 2015), and on what it is IDs really do (Kumar & Ritzhaupt, 2017). However, none of these studies closely examined how those processes are manifested in designers' talk during design collaborations.

Voices calling for the study of actual practice make a special note of how language in use might provide insight into valuable aspects of ID. Gibbons (2013) posited that anyone working in a certain profession in collaboration with others develops over time a language or vocabulary that is used in that context, but he stopped short of making any claims about what that language entails. Gibbons' (2013) perspective still aligned with others (Boling & Gray, 2018; Gray et al., 2015; Rowland, 1992) who also advocated for empirically grounded studies focusing on language in use and referenced a starting point outside of IDT.

The notion that designers develop unique communications regarding their work was established in multiple fields of research over the past four decades. Dorst (2015) argues that there is an advanced beginner stage where a facility with the unique linguistic routines of design emerges. Scholars refer to these types of advanced language-in-use as a Discourse (Gee, 2014). Schön identifies discourse competencies in design, designers "learn to detect multiple references, distinguish particular meanings in context, and use multiple references as an aid to vision across design domains" (1983, p. 98). This language of design connects professional IDs to their work (Dong, 2009). Design discourse is also an external representation of design expertise, and an externalization of design thinking (Cross, 1982). Through this design language, designers are able to both acquire expertise and represent the expertise they have acquired. In other words, a Discourse, in Gee's (2014) terms, facilitates collaboration in design. Language-in-use holds a foundational position in the design process. Furthermore, design discourses influence and advance the field, "As design languages evolve and we become fluent in using them, the result is advances in design sophistication, effectiveness, productivity, and quality of designs" (Gibbons & Rogers,

2009, p. 306). Design discourses are a shared community that has theoretical and practical foundations and help evolve our practice of design (Gibbons & Rogers, 2009).

Bevins and Howard (2020) operationalized the term design discourse using literature drawn from linguistics, design, and IDT with the specific aim of disambiguating some of the terms. The term Discourse emphasizes the language-in-use aspect of communications and helps us distinguish between unique abilities to express oneself regarding designs for learning and the typical notions of grammar and vocabulary that make up lay understandings of language (Gee & Handford, 2012). The growth of terminology is notable in the literature. In many cases, such as Gibbons and Rogers (2009) and Dong (2009), the authors used the term language bounded by how the language is used, thus language-in-use. Language-in-use is the definition of discourse, and it includes both the what and the how of talk among members of a certain group. The group establishes practices of communication, and these could include gestures, unspoken rules, assumptions, and ways of interpreting the communications of others. Design discourse, then, refers to all the communications that surround real acts of designing (Bevins & Howard, 2020). Conversations that happen in professional design spaces are "full of references which in turn point to huge chunks of information" (Lawson, 2004, p. 445). By examining design discourse, scholars in IDT can grasp the nature of design and how expertise is negotiated (Lawson, 2004). In the field of IDT, Gibbons and Rogers (2009) refer to this design discourse as design languages, and define these as communications "centered in tools, processes, technologies, theories, or best practices of a domain" (p. 23). Design Discourse offers a glimpse into the expertise and inherent communicative practices in instructional design collaboration.

An adjacent term that we found in the literature that seems to be addressing a similar aspect of collaboration is linguistic routines. As in all professions, design professions have their own linguistic routines that can be examined to better understand the design process (Dannels, 2005; Gibbons, 2013). The field of IDT lacks a formal operationalized definition design language. Neither Dannels (2005) nor Gibbons (2013) listed what these routines actually are. Gibbons (2013) addresses that shortcoming directly. "[The field of IDT] has failed to develop a robust theoretical vocabulary for discussing designs and the act of designing" (Gibbons, 2013, p. 151). We concluded from our review of the literature that from an examination of design discourse in collaborations, the field of IDT can advance recognition and understanding of the design language used by professional IDs. If we know what design discourse in IDT is, then we can identify it, teach it, and develop it. All of this research we encountered, and our study as well, employs a theoretical frame that assumes design is embodied in language-in-use.

The literature surrounding design expertise was the basis for the taxonomy of our code book. Research on the process of design, including studies in IDT itself, has recognized nine unique types of design expertise (Bevins & Howard, 2020). These nine design expertise types are problem solving, problem framing, precedent, usability, user experience, aesthetics, external representations, tools, and design tensions. We provide supporting literature for each of these design expertise areas in Appendix A.

Theoretical Frame

We assumed a theoretical frame that believes professional practice is embodied in discourse. This perspective values examining the discourse of IDs to better understand the instructional design collaborative process and views the transparency of discourse to be more reliable than self-reports. “Our conjecture is that design partially subsists in language; the substrate is the language of design” (Dong, 2009, p. viii). Direct examination of a designer’s thinking is impossible. Even if we had interviewed designers to find out what discursive practices they used, it would not be as reliable evidence as actual discourse from practice. Therefore, in order to understand how designers make meaning in collaborations, we studied their language-in-use. Design discourse in turn helps us understand the foundation of the discipline at a fine-grain level as those foundations actually manifest in practice.

Instructional designs are realized through collaboration. These collaborations could consist of ID-ID conversations, ID-client conversations, or a combination of both. The conversations that teams have surrounding a project are an important part of the design process (Lawson, 2005). Design is not a set of directions to follow but rather a negotiated experience. “Language use is an embodied phenomenon. The ability to use language entails the ability to articulate, listen, learn, and conceptualize experiences, including feelings” (Krippendorff, 2006, p. 152). Our theoretical frame assumes that these abilities become observable in the design discourse of a designer at work.

Discourse analysis is the methodological toolkit used to study language-in-use, in this case, discourse as the embodiment of design expertise. Discourse analysis uncovers how people make meaning (Dunn & Neumann, 2016). “Language (in use) produces a common sense that anchors designers and their work to a body of knowledge and practice” (Dong, 2009, p. viii). Shared understanding of the IDT concepts, ways of thinking, strategizing, and moving towards solutions among IDs’, and IDs and clients, allows designers to recognize members and non-members of the discourse community and participate in it (Krippendorff, 2006). A discourse analysis of the language of designers in active collaboration with other designers and with clients describes IDT through the lens of language-in-use. To be clear, we did not approach the data with a view of how collaboration should take place, or how we might imagine it does. Rather, this theoretical frame used discourse analysis procedures to guide the analysis, resulting in this overarching question: What areas of design expertise comprised the discourse of collaboration when IDs met with clients?

Purpose of the Study

We examined the types of design expertise found in instructional design collaborations to better understand how different strategies emerge in different roles. In these collaborations, there were two different speaker roles - ID and client. These collaborations disclose how meaning is made and how solutions are found in the collaborative process between IDs and clients. The language-in-use from design collaborations offered unique empirical value as a window into how collaboration actually takes place in instructional design. The following section explains the methodological process we followed to select, collect, and analyze the content of design discourse among designers and clients.

Methods

Study Context

Collaborative Project Meetings (CPMs) were part of an Office of Instructional Technology (OIT) initiative at a large research one university in the Southeastern United States. The program was created to help instructors design and develop new online courses. Instructors were the clients and each was assigned a lead ID, and sometimes a secondary ID, who assisted them with the development of online materials and teaching strategies. This study contained no other roles in the discussion besides ID and client. This program consisted of four different stages of development 1) asynchronous online training via Canvas, 2) in-person meetings between the faculty member and the assigned ID(s) to work on course development, 3) a quality assurance check before implementing the developed course, and 4) the course implementation. Our data was drawn from meetings in stage 2 of the program, the in-person meetings. We audio-recorded five different meetings.

The client and one or two assigned IDs participated in each of these design deliberations for course development. All five meetings included at least one ID and one client, though some meetings included two or more IDs. All five meetings were initial face-to-face meetings; that is to say, none were follow-up meetings. At this stage in the project, the clients had completed their asynchronous online training and had been given a few initial course development tasks, i.e. design a syllabus, create the course schedule, and rethink assignments and assessments.

Participants

There were 11 total participants in this study. There were six IDs (3 females and 3 males) and five clients (2 females and 3 males). The IDs were all full-time employees in a professional ID capacity, and the clients were all faculty at the university. All IDs had formal instructional design training at the graduate level in Instructional Technology. All participants signed a university approved Institutional Review Board (IRB) informed consent form agreeing to participate in the study. The breakdown of the participants by each meeting can be seen in Table 1. Three IDs appeared in more than one meeting.

Table 1

Makeup of the meeting participants by number, role and gender, summing in total to unique individuals 11 participants in 14 different instances.

Meeting	Number of IDs present	Number of clients present	Gender of IDs	Gender of clients
Meeting 1	1	1	F	F
Meeting 2	3	1	2 M, 1 F	M

Meeting	Number of IDs present	Number of clients present	Gender of IDs	Gender of clients
Meeting 3	2	1	2 M	M
Meeting 4	1	1	F	M
Meeting 5	2	1	2 F	F

This was a purposive sample of convenience. The director of the OIT had shown support for the study and promoted it, which may have inspired a willingness to participate. The administration provided an opportunity to collect signed informed consent forms prior to the data collection period. We anonymized the corpus of interactions (data) prior to coding, retaining roles, timestamps, and other important information.

Development of the Codebook and Applied Analytical Procedures

After the recordings were transcribed into spreadsheet software and scrubbed, we began an iterative development process of customizing a codebook. We built this customized codebook starting from a previously published taxonomy of design discourse in ID (Bevins & Howard, 2020). Design expertise describes both the design constructs that scholars say are an integral part of the design process and the different skill levels of IDs. We operationalized these external representations of design expertise by coding the design concepts and constructs that designers used.

As a starting point, we coded discursive turns by substance (Howard, 2012) first, slicing turns into new segments, often referred to as utterances, when the speaker changed, or the content of the speaker's interaction changed. The initial codebook consisted of nine content areas of design discourse. In this iterative process, we determined that discourse management was so prevalent that we should count that separately. We developed a second set of additional codes that ensured word count statistics accurately represented mutually exclusive codes. We reasoned that discourse management turns were distinct from other categories and might comprise strategies of their own. Table 2 provides the substantive codes as well as the discourse management categories, with definitions and examples. We provide these examples and definitions so that the reader can appreciate the flavor of the data, the slight differences between discourse management and the enactment of design expertise, and potentially replicate the study elsewhere which we believe might prove useful.

Table 2

The codebook showing mutually exclusive codes of two different kinds: Codes of design expertise drawn from the literature and operationalized in the context of this study, and

codes of discourse management (denoted by). Examples are drawn directly from the sample.*

Design Discourse	Definition	Example
Tools	Discourse regarding the tool employed in the design process.	“And then I put the cursor down here. And I click on more external tools, just like in the module, and I choose studio.”
Design Tensions	Discourse surrounding issues related to the vision of the project, the initial focus, the project limitations or competing constraints, or the consequences of the designed product.	“or you're not going to be able to pull that together by Friday, then just don't worry about that.”
Problem Framing	Discourse surrounding how the designers see or view the problem or that identifies the subject of the design as an example of a specific design genre.	“Um, but because we're looking at instead of a graduate class an undergraduate class”
Problem Solving	Discourse surrounding the establishment of the problem or a comparative analysis of multiple design solutions; characterized by hypothetical and conditional statements. A gambit.	“I've got about seven main assignments in the way I teach it face to face, I may change that to five or combine the six and seven, so five or six in the summer just for ease.”
Precedent	Discourse about a previous experience both as a designer or a user.	“which I have. Well, actually, I haven't, I change peer reviewers in my other online course, and they just do one group project.”
Aesthetics	Discourse surrounding the holistic experience of the design (the emotional, physical, and/or spiritual experience of the designed product.	
User Experience	Discourse surrounding what the user sees, hears, and does while using the designed product.	“It looks really nice. It'd be a nice nice asset. The intro video is also really important.”

Design Discourse	Definition	Example
Usability	Discourse surrounding the usability of the designed product, including problems or positive aspects of using the designed product.	"We want to empower the students to know what they're doing without you having to get involved with, you know, a bunch of emails through the week and so forth. That annoys everybody. So that will be that's really the advantage of having nice and clean structure. They can take over and they know what to do."
External Representations	Discourse about sketches, written notes, pictures – anything that represents the design.	
Inquiry*	Discussion used to elicit information from the other speaker (could be in question or statement form)	"And it's your preference to do a five week versus a full?" Potential miscodes: "Okay. And this was the one where you were talking about, you had asked me about whether to go with four groups of five, or five groups of four?"
Procedural*	Discourse surrounding procedural, logistical, or organizational tasks related to the design project.	"We can review of the canvas jumpstart and kind of kind of see where where you have completed things where you haven't."
Backchannel*	Discourse intended to convey the interest and/or comprehension of the listener (Yngve, 1970).	"Yeah, okay, mmhmm, right."
Positive reaction*	Discourse intended to convey a positive reaction of the listener to the idea expressed by the speaker.	"Oh yeah, that sounds good."
Tangential*	Discourse not about the current project but somehow related to the current project.	"if you can get the screen to come on. I couldn't get it to come on the other day."
Off topic*	Discourse that is off topic and is not associated with the project or anything tangential to the project.	"Have you seen frozen 2"

Design Discourse	Definition	Example
Null*	Discourse that is incomprehensible and does not relate to a previous utterance.	"If you"

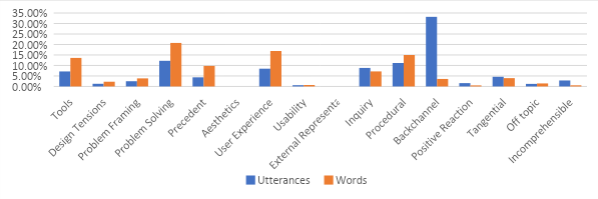
The six additional codes for discourse management strategies were not in the initial codebook from Bevins and Howard (2020) because that taxonomy was not developed from a corpus of discourse, but rather from research literature. We reasoned design discussions, like all real-world discussions, require discourse management strategies to enable a discussion to take place intelligibly. For example, backchanneling is a way for interlocutors to show they are listening (Yngve, 1970). These discourse management strategies are not part of design expertise, but they are important to recognize because strategies differ among contexts (Howard, 2012). We had 16 total codes in our final codebook.

Results

To begin, we calculated the total number of utterances and words by discourse code. There were a total of 2,244 utterances in the sample. Inter-rater agreement on substance codes applied to utterances was at 82%. Figure 1 shows the normalized total utterances and total words per discourse code of IDs and clients combined. These calculations were completed to better understand the discursive behavior in the discussions as a whole. Backchannel (Yngve, 1970) was the most common and accounted for a third of the total number of utterances. Backchannel, however, is discourse management used by the listener to indicate they are listening and understand what the speaker is saying. These short utterances typically consist of only one or two words, such as Okay or Yeah. Backchannels facilitate discussion but do not represent design expertise in discussion. For this reason, we decided to report the results of discourse types in words instead of utterances, because it more accurately represents the discursive action in these design meetings (Howard, Barrett, & Frick, 2010).

Figure 1

The normalized total utterances and total words per discourse type showing that backchannel had the most utterances of any discourse type and that problem solving had the most words of any discourse type.



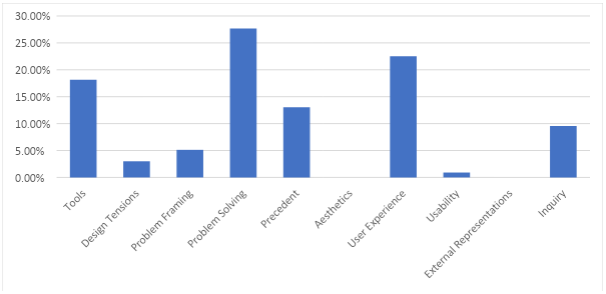
Problem solving took up the largest part of the discussions, accounting for 20% of the total of all words in the data. Backchannel occupied the most utterances, but only accounted for 3.5% of the total amount of words. The next three most common discourse codes were User experience, Procedural, and Tools, accounting for 17%, 15%, and 13.6% respectively. We next divided the design discourse types from the discourse management strategies. Design discourse made up 75% of the total words in these design discussions, and discourse management strategies accounted for the other 25% of the total words. From this result, we can see that IDs and clients in these meetings spent 75% of their discourse effort in areas of design expertise about the project and 25% of their time managing how each discussion would take place.

The prevalence of different areas of Design Expertise

Our primary analytical procedure focused on the design expertise found in the corpus. We found eight of the ten design discourse codes from our finalized codebook in the design meetings between IDs and clients (Figure 2). In this study, we found that IDs and clients spent over a fourth (27.66%) of their design discourse on problem-solving. Problem-solving is a focus on the establishment of the problem or on the hypothetical solutions that could be used to solve the problem (Cross, 1982; Lawson & Dorst, 2009). The second most prominent design discourse type was user experience (22.54%) followed by discussions about tools (18.14%). Discussions surrounding precedent accounted for 13% of the design discourse. Problem framing, design tensions, and usability accounted for less than 5% each of the design expertise codes of discourse. In this study, we did not find examples of discourse surrounding aesthetics or references to external representations in these design discussions despite these areas of expertise being discussed in the literature. Figure 2 depicts design discourse codes in words to show the relative discursive effort devoted to each type of expertise.

Figure 2

Normalized total words by design discourse, showing problem-solving accounted for the most words among all design discourse in the sample and aesthetics and external representations were absent in the sample.

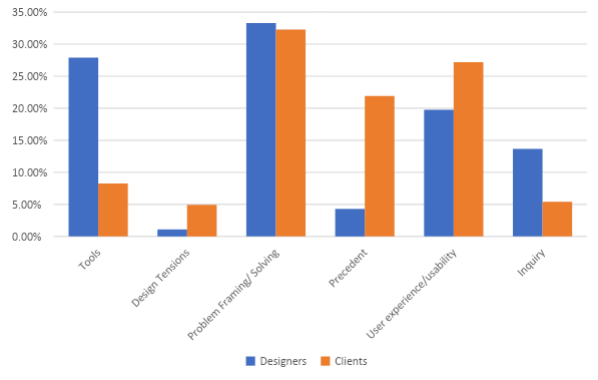


Design Discourse by Role

We also calculated the design discourse frequencies by speaker role to better understand design discourse. For purposes of this study, there was only one of two possible roles for each speaker, either ID or client, regardless of rank in their respective job description. This is the only case where we aggregated two areas of design expertise, usability/user experience and problem solving/problem framing, due to our difficulty reliably disambiguating these areas of expertise apart from each other when it came to the two roles. Clients rarely use the terms, but often referred to their learners' smooth experience of the instructional design or to the main problem along with solutions they had already contemplated, and we felt calculating separately would artificially present a difference which in fact contained no discernible meaning. While both clients and IDs most frequently spent their discursive effort on problem solving, clients spent more time than IDs on discussions regarding design tensions, precedent, and user experience (see Figure 3). In contrast to clients' discourse spent on design tensions, precedent, and user experience, IDs spent their words on discourse surrounding tools, user experience, and asking questions (inquiry). Note again that this frequency is calculated by total words, not the number of times these areas of design expertise were called into discursive action. This analytical procedure foregrounds more complex discourse because turns are longer among some discourse codes (such as problem solving) as shown in Figure 1. Figure 3 graphically juxtaposes the six design discourse codes' word counts between IDs and clients, allowing the viewer to better visualize where the two roles diverged in their collaborative design strategies.

Figure 3

Normalized percentages of design discourse categories showing the differences between the ID and the client role.



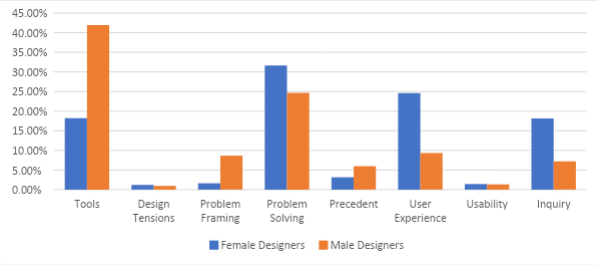
In both speaking roles, the most frequent and least frequent codes were shared. However, the relative difference in words devoted to the divergent codes is curious. The two roles differed most prominently in the discourse surrounding tools, where IDs far outweighed clients by more than three times as much. Thereafter clients far outweighed IDs in words devoted to precedent or the retelling of previous design experiences, again by more than three times as much. IDs devoted more than twice as much of their discourse to asking questions (inquiry) than clients did.

Design Discourse by Gender

We conducted an unplanned additional analysis of the design discourse of IDs by gender due to noticeable trends in the data. After noticing clear differences in word count measures devoted to different design expertise, we reasoned that a perspective that accounted for gender might bring about a richer discussion. Figure 4 shows the design discourse of male and female IDs and how each gender employed different design expertise in their discourse.

Figure 4

Percentages total words of design discourse showing the differences between female and male IDs design solution strategies.



Male IDs primarily focused on design solutions incorporating tools, and female IDs primarily focused their discussion on problem solving. Problem solving, tools, and user experience were the three design discourse types that were the most prominent in the discourse for both female IDs and male IDs. However, these three design discourses ranked differently by the gender of the designer. Female IDs focused the majority of their discursive time in design discourse on problem solving, user experience, and tools, respectively. Male IDs focused the majority of their discursive time in design discourse on tools, problem solving, and user experience, respectively. These results suggest that male and female IDs focused on similar design expertise but at different discursive efforts.

Discussion

What areas of design expertise comprised the discourse of collaboration when IDs met with clients?

The following seven areas of design expertise were present in every collaboration and comprised discussion in the following descending order of prominence: *(1) Problem-Solving (27.6%), (2) User Experience (25.4%), (3) Tools (18.1%), (4) Precedent (13.1%), (5) Inquiry (9.6%), (6) Problem Framing (5.1%), and (7) Design Tensions (3%).*

We found eight of the ten possible types of design discourse in these collaborations between IDs and clients. This evidence is consistent with the IDT literature and suggests not only that design discourse is integral to the act of design, but is also part of the collaboration process as well (Boling, 2010; Clark, 1994; Cross, 1982; Cross, 2011; Dorst, 2015; Lawson & Dorst, 2009; Norman, 2013; Oxman, 1994; Schön, 1983; Schön, 1987; Tatar, 2007;). Seven of

the eight design discourse areas that were found in the data suggest that these discourse areas embodied the majority of the act of design collaboration for both IDs and clients.

Problem solving was the most prominent design discourse type for both designers (33%) and clients (32%). Jonassen (2000; 2008) has advocated for a long time that problem-solving is at the center of instructional design. The results from our study add further evidence to his claims. Problem-solving consists of discourse surrounding the establishment of the problem or surrounding a comparative analysis of multiple design solutions. In the five design meetings in our study, both clients and IDs were focused on the problem of changing a face-to-face course to an online course and on the complications that arose during their initial design process. They were focused on solutions to those problems, as Jonassen (2000; 2008) argued instructional designers always do. This finding also aligns with Rowland's (1992) finding that IDs spent extended time analyzing the problem and considering solutions to the problem. This finding suggests that problem-solving plays a central role in IDT collaboration. The percentage of words devoted to problem-solving may also suggest that problem-solving may in fact be more than just one area of design expertise, as other studies have broken the exploration of solutions into gambits, reframing, and justifying design moves in hypothetical terms (Howard & Gray 2015).

While we focused most of our analysis on the areas of design expertise, we also note that a discourse management code was in fact the most common, backchannel. It does beg us to consider the role listening plays in design discourse. If the most common turn is to tell the other that one is listening, listening may in fact be a discourse skill of unique importance to the act of collaboration. We do not typically teach learners how to listen to clients, but experienced managers of IDs, and advanced IDs, have put forward the notion that better designers can hear clients' needs (Howard & Benedicts, 2019). We would be remiss not to mention just how significant this finding might have been.

The language-in-use of designer vs. clients

IDs and clients shared the range of design discourse but in different measures. IDs primarily focused on *problem-solving, tools,* and *user experience*, in that order of prominence. Clients on the other hand measured *user experience, problem-solving,* and *precedent*. These differences suggest that in design collaborations, IDs and clients bring dissimilar foci to the early phases of the design process. While both roles emphasized problem-solving, how that problem-solving manifested itself in their solution exploration depended on the role. We interpreted these results to evidence a dynamic to the collaborations. While a client sees the experience of the design from the user's perspective, such as a lot of attention paid to precedent, the ID offers affordances of the tools or searches the user experience to generate instructional solutions.

Gender's impact on design solutions

The disparity of design expertise discourse (beyond problem-solving) between males and females suggests that collaboration is a process where the agency of the designer has a real impact on the design. This focus on the agency of the designer is becoming progressively more recognized as we see studies emerge where the agency of the designer is foregrounded, such as in Lachheb and Boling's (2018) study that asked designers what

tools they use and why. Gender dynamics was not an initial target of inquiry in our study but emerged from the data. The differences force us to question assumptions as we move from notions that the design model drives the design to other ways of imagining how designs come into being through collaboration. As a field of study, we have a long history of recognizing ill-structured problems, but our corpus of interactions begs the question that maybe solutions are not entirely determined by the problem per se, but rather by the discussions' trajectories and what the participant IDs bring to the table. This supports the notion that IDs create the problem frame; it does not just appear to them.

There is also a temptation here to engender design solutions. We can interpret the prevalence of the discourse surrounding tools by male IDs to suggest a male-gendered perspective on problem-solving. By the same token a focus on users to engender female solutions. Being aware that discourses could generate such notions could make us more aware of contexts where gender assumptions could lead us down unfruitful paths. Awareness of the potential of stereotypical assumptions combined with an awareness that mixing genders might in fact support ID teams to make the most of what all designers bring to collaboration, may avoid excessively labeling anyone, or any solution.

In the end, taken as a whole, the results here suggest that more design solutions will emerge from mixed-gender ID teams. Design firms may find utility in this insight. The gender analysis suggested a wider array of solutions would emerge from the discourse of both female and male IDs on the same team. Female IDs primarily focused on problem-solving and user experience, and male IDs focused on tools and problem-solving. These results imply that, when able to, forming mixed-gender collaborative teams will have more access to a broader range of design solutions. These data imply that gender variety enhances collaboration and makes accessible more design solutions than would otherwise emerge.

The Complexity of Usability

Usability was the one problematic discourse area because it appeared in only two meetings but was also remarkably similar in content to User Experience. This prompted us to aggregate the two codes for one analytical procedure– the comparison of the design discourse between the roles of ID and client. We reasoned that the close alignment of usability and user experience may suggest that the differences in the literature on this aspect of design expertise may be influenced by design discipline, project genre, or even speaking role. In a more general sense, two areas of expertise may actually be one skill emerging differently in design discussions simply based on stakeholder positioning. Usability was the least frequent design discourse in these collaborations. Of the eight design discourse areas that we found in the data, usability only accounted for 0.91% of the words devoted to design discourse. This finding is consistent with the Bevins and Howard (2020) study that found very little discourse surrounding usability despite its prominence in the literature of IDT.

We might expect to see discussions surrounding usability more towards the end of a project. Usability involves the user discovering how to use a designed product (Norman, 2013). To determine the usability of a product, we would need a prototype of the designed product. This study consisted of design meetings in the beginning stages of a design project, which is why we may have found little discourse surrounding the usability of a product. We

interpret these findings to suggest that discourse surrounding usability may appear in design collaborations that are in the end phases of a project.

Usability may also be a design expertise that is not as prominent in IDT collaborations as in the other fields of design which spawned some of the literature we reviewed. Usability consists of the intuitiveness of a designed product for the user (Norman, 2013). The examples discussed in Norman's book revolve around physical objects, such as door handles, chairs, etc. Most design projects in IDT are not tangible, physical objects, but instead consist of lesson plans, learning objects, websites, classes, programs, or any number of things that cannot be physically manipulated by the user. Typically, designed products in IDT have to be accessed via a tool of some kind, i.e. a computer, a tablet, a phone, etc. In other fields of design, understanding of how to use the designed product is squarely placed on the designer, whereas in IDT, there is an assumption that the user must put forth effort in learning how to use the design. Since the data reflects relatively low frequencies of this discourse, it may in fact be that IDs do not habitually rank usability as high as other design goals. These data point to the conclusion that user experience and usability are one and the same in IDT collaborations, albeit from different speaking roles, and less frequent than we might hope.

Data suggested essential skills in design collaboration

These results may suggest that there are essentials to design collaboration that are worthy of more attention. There were three design types that accounted for a combined 54% of the design discourse. Those were *user experience* (22.54%), *tools* (18.14%), and *precedent* (13.06%). These findings suggest that after problem-solving, IDs and clients were next focused on the users, tools, and past experiences. Looking out for the user experience and usability, the tools needed to create and implement a design, and the prior experiences of both IDs and clients may bring your standard problem-solving ID to 99% of the expertise in IDT collaborations. These three design discourses together held approximately equal discursive frequency in collaboration in IDT to problem-solving and four areas together may be the baseline for ID collaborative competency.

By the same token, the less frequent discourse areas might suggest more advanced skills. Alternatively, more difficult design problems may elicit more advanced skills in collaboration. The infrequency of discussion about Design tensions in these collaborations suggests that certain types of design discourse may be prominent at different phases in a design project, but also may appear only when trying to solve unique design problems. The discourse surrounding design tensions did not play a central role in these design collaborations, accounting for only three percent of the design discourse. This contradicts other studies of design collaborations among undergraduate students in a design studio (Bevins & Howard, 2020). In that study, the discourse surrounding design tensions was the second most frequently found in the data set. Differences in phases of the design projects, designer skills, or difficulty of the design problem remain plausible explanations for the disparate frequencies but also beg further investigation. In Bevins and Howard (2020), the project was in the beta stage of the design project, and in the present study, the design project was at the beginning. Different stages in the design process may favor one design discourse over

another, or it may be that design skill dramatically impacts the types of expertise employed in solving problems.

Design Discourse that did not appear

The absence of discussions involving attention given to *Aesthetics* and *Reference to external representations* suggests that these design discourse areas are uncommon or rare in IDT collaboration, at least at this stage in the design process or at this level of expertise. There could be many reasons for a lack of evidence of discussions surrounding *Aesthetics or Reference to external representations;* however, other studies have documented that these areas of design discourse are particularly difficult to communicate for early designers (Howard & Bevins, 2020). Two studies in the IDT literature found examples of discourse surrounding aesthetics (Howard & Bevins, 2020) and external representations (Howard & Gray, 2015), though these studies did not examine practicing, authentic instructional designers. These studies were observing later phases of the design process suggesting that these two design discourse types may not be part of the collaboration in IDT in the early phases of a project.

Implications

This study illuminates how professional IDs and their clients make meaning via collaboration around design projects. These results invoke opportunities to grow our understanding of collaboration in design, and in the design process itself through these verbalized patterns of discourse. At the same time, the real utility may lie in the potential growth of our own instructional designs educating early designers, and optimizing the design expertise of design teams to access a greater range of solutions. Much of this revolves around supporting problem-solving and developing an understanding of how the other forms of design discourse aid in developing that skill set.

The prominence of Problem-Solving as an act of design

This study implies that the design process is to a large extent the act of problem solving. Problem-solving was the most frequent type of design expertise found in the data. The implication here is that the establishment of the design problem is the most prominent design act, as suggested by Jonassen (2000; 2008). To further understand the role of problem-solving in the design process, it may be necessary to investigate if there are different types of problem-solving, as suggested by Jonassen (2008), in different phases of the design process or in different types of design projects.

Training early designers

Exercises in problem-solving, tools exploration, user inquiry, and the review of past designs (design precedent) may be the most direct path to ID collaborative competency. Problem-solving was the most prominent type of design discourse found in the data. Providing exercises and opportunities for students to establish design problems (Jonassen 2000,

2008), discuss potential solutions, and deal with complications that arise from those solutions may be the essential ID curriculum. A nuanced understanding of how collaborations function may aid ID educators. An awareness of the value to tools and the potential of exploring the user experience might make time spent in these areas more transparent and pedagogically valuable.

An awareness that tool knowledge is the second most common solution strategy might be helpful in preparing students for the professional realm. IDs in this study spent over a fourth of their discursive time on discussions surrounding tools, implying that the practice of IDT is tied to the use and discussion of technological tools. Aligning this result with that of Bevins and Howard (2020) that undergraduate students actively working on a design project spent 42.5% of their discursive time talking about tools further suggests that time spent on discussions about tools in IDT training programs will further designers' access to solutions. Providing space and time for the exploration of tools in IDT programs will prepare students for design practice in collaboration with others.

The final implication in terms of training early designers promotes that IDT programs need to have a broader and more extensive focus on the needs of the users. User experience was the second most prominent type of design discourse found in the data. If we combine this finding with the methodological struggles that we had concerning *usablity's* relationship with user experience, this point is even stronger. IDs devoted 18%, and clients devoted 26%, of their discursive time to discussions surrounding the needs of the users. Training IDs to consider the needs and experiences of the users will help them to prepare for design collaborations with fellow IDs and more specifically with clients.

Limitations

The shortcomings of this study align with any qualitative data handled in a such quantitative manner. Results are not generalizable because of the small sample size of the participants involved. In this study, we examined the design discourse of six IDs in practice. Further examination of a larger sample of IDs would be needed in order to generalize this data to the larger population of IDs. We also focused on IDs in the context of higher education. Examining IDs in other fields, i.e. business and industry or K-12 education, would also be useful in order to determine if these areas of design expertise are also prominent in discussions in other IDT contexts.

Another limitation of this study is the phase of the design project where this data was collected. All five discussions that were audio-recorded and analyzed were at the beginning stages of the design project. Some of the differences found in the results between this study and other similar studies (Bevins & Howard, 2020; Howard & Gray, 2015) may result from the differences in the phases of the design projects. Examination of similar conversations between IDs and clients in the same program in a later phase of the design project may find different areas of design expertise that are more prominent at that point in the project.

Clients are not trained designers, so conclusions drawn from their discourse speak not to expertise in design, but to client discourse only. The five discussions that we audio-recorded and analyzed were ID-client conversations. This is a limitation because these two speaker roles do not belong to the same communities of expertise, and clients would, therefore, not

be versed in the language of the community of IDT. This would result in an abridged form of design discourse, because the language of IDs is being accommodated for the client. Therefore, IDs are not going into the full form of their expertise as a designer. The full form of their expertise would appear in conversations with other IDs who are well-versed in the language of design.

We also did not distinguish these conversations between ID-ID conversations and ID-client conversations. Of the five meetings, there were three meetings where more than one ID was present. This means that there could have been exchanges between just the IDs and then between one (or more) ID and the client. We did not analyze the data according to these exchanges. It could be that if we separate out the ID-ID conversations from the ID-client conversations, the type of design discourse that is evident would be different depending on the role of the other participant in the conversation.

Future Research

This study could lead to several areas of future research. In looking at the results of this study, two of the major findings could lend themselves to further investigation. Seventy-five percent of the design discourse found in these discussions centered on discourse about problems, users, and tools. Further investigation into design discourse, and especially in other phases of a design project, could provide a more nuanced understanding of the types of design expertise employed by IDs throughout the whole design process.

In this study, we also found that male and female IDs focused on different types of design expertise in their discussions with clients. Further investigation of the differences between genders could provide more insight into the unique areas of design expertise that male and female IDs bring to the table. Examining design discourse from a gender perspective could also provide insight into how these types of design discussions progress and how the collective expertise of IDT can be built.

One area of research that would further this study is to examine conversations that distinguish between ID-ID conversations versus ID-client conversations. In order to participate in the professional community of IDT, IDs must show their understanding of the IDT concepts, ways of thinking, strategizing, and moving towards solutions through their discourse (Krippendorff, 2008). It could be that IDs would tend toward certain design expertise when collaborating with other IDs versus when collaborating with clients, who do not belong to the IDT professional community. Examination of these two distinct types of conversations could provide further information about how IDs collaborate with others in similar and differing roles.

Conclusion

This study endeavored to connect the literature of IDT and the other fields of design to empirical evidence of practicing designers' language in use to better understand IDT collaboration. It was not grounded theory and not unbiased. Rather, the study relied heavily on previous research in both discourse analysis and design. Studies in this field must build on each other if we are to bring the field progressively in line with other professional fields of

design. This study provided empirical evidence that the expertise of IDs is expressed via discourse surrounding problem-solving, technological tools, and the user experience, that listening is 25% of the ID skill set, and that mixed-gender teams may offer access to a broader range of learning solutions. The ultimate hope of this research trajectory is to enable a precise understanding of IDT expertise so that eventually the professional IDT practitioner will become a recognized entity.

References

Bevins, K. L., & Howard, C. D. (2020). The design discourse of the advanced beginner. In B. Hokanson (Ed.), *A New Focus for Learning: Educational Technology Beyond Content*. New York: Springer-Verlag.

Boling, E. (2010). The need for design cases: Disseminating design knowledge. *International Journal of Designs for Learning, 1*(1), 1-8. https://doi.org/10.14434/ijdl.vlil.919

Boling, E., & Gray, C. M. (2018). Use of precedent as a narrative practice in design learning. In B. Hokanson, G. Clinton, & K. Kaminski (Eds.), *Educational Technology and Narrative* (Vol. 1, pp. 259-270). Cham, Switzerland: Springer International Publishing AG.

Buley, L. (2013). *The user experience team of one*. Brooklyn, NY: Rosenfield Media.

Clark, R. E. (1994). Media will never influence anything. *Educational Technology Research and Development, 42*(2), 21-29. https://doi.org/10.1007/BF02299088

Cross, N. (1982). Designerly ways of knowing. *Design Studies, 3*(4), 221-227. Retrieved from http://larossa.co/cross_1982_designerlywaysofknowing.pdf

Cross, N. (2011). *Design thinking*. New York, NY: Bloomsbury Academic.

Dannels, D. P. (2005). Performing tribal rituals: A genre analysis of “crits” in design studios. *Communication Education, 54*(2), 136-160.

Dong, A. (2009). *The language of design: Theory and computation*. London: Springer.

Dorst, K. (2015). *Frame innovation: Create new thinking by design*. Cambridge, MA: The MIT Press.

Dunn, K. C., & Neumann, I. B. (2016). *Undertaking discourse analysis for social research*. Ann Arbor, MI: University of Michigan Press.

Gee, J. P. (2014). *An introduction to discourse analysis: Theory and method*. Routledge.

Gee, J. P., & Handford, M. (Eds.). (2012). *The routledge handbook of discourse analysis*. New York, NY: Routledge.

Gibbons, A. S. (2013). *An architectural approach to instructional design*. New York, NY: Routledge.

Gibbons, A. S., & Rogers, C. P. (2009). The architecture of instructional theory. In C. Reigeluth & A. Carr-Chellman (Eds.), *Instructional Design Theories and Models: Building a Common Knowledge Base* (Vol. III). New York, NY: Routledge.

Gray, C. M., Dagli, C., Demiral-Uzan, M., Ergulec, F., Tan, V., Altuwaijri, A. A., . . . Boling, E. (2015). Judgment and instructional design: How ID practitioners work in practice. *Performance Improvement Quarterly, 28*(3), 25-49. https://doi.org/10.1002/piq.21198

Gray, C. M., & Howard, C. D. (2014). Designerly talk in non-pedagogical social spaces. *Journal of Learning Design, 7*(1), 40-58. https://doi.org/10.5204/jld.v7i1.153

Howard, C. D. (2012). An instructional paradigm for the teaching of computer-mediated communication. *Instructional Science, 40*(3), 493-513. https://doi.org/10.1007/211251-011- 9187-0

Howard, C. D., Barrett, A. F., & Frick, T. W. (2010). Anonymity to promote peer feedback: Pre-service teachers' comments in asynchronous computer-mediated communication. *The Journal of Educational Computing Research, 43*(1), 89-112.

Howard, C. D., & Benedicks, R. H. (2019). An industry liaison for graduate learning in instructional design. *Tech Trends, 63*(5), 1-9. Retrieved from: https://doi.org/10.1007/s11528-019-00465-4

Howard, C. D. & Bevins, K. L. (2020). "The blue dot thing": A discourse analysis of learner interlanguage in instructional design. *Co-Design.* https://doi.org/10.1080/15710882.2020.1789173

Howard, C. D., & Gray, C. M. (2015). Higher order thinking in design reviews. In R. Adams (Ed.), *Proceedings of the DTRS 10 Symposium*. West Lafayette, IN.

Intentional Futures. (2016). *Instructional design in higher education: A report on the role, workflow, and experience of instructional designers*. Retrieved from https://intentionalfutures.com/static/instructional-design-in-higher-education-report-5129d9d1e6c988c254567f91f3ab0d2c.pdf

Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and Development, 48*(4), 63-85. https://doi.org/10.1007/BF02300500

Jonassen, D. H. (2008). Instructional design as design problem solving: An iterative process. *Educational Technology, 48*(3), 21-26. Retrieved from: https://www.jstor.org/stable/44429574

Kozma, R. B. (1994). Will media influence learning? Reframing the debate. *Educational Technology Research and Development, 42*(2), 7-19. https://doi.org/10.1007/BF02299087

Krippendorff, K. (2006). *The semantic turn: A new foundation for design*. Boca Raton, FL: Taylor & Francis Group.

Kumar, S. & Ritzhaupt, A. D., (2017). What do instructional designers in higher education really do? *International Journal on E-Learning, 16*(4), 371-393.

Lachheb, A., & Boling, E. (2018). Design tools in practice: Instructional designers report which tools they use and why. *Journal of Computing in Higher Education, 30*, 34-54.

Lawson, B. (2004). Schemata, gambits, and precedent: Some factors in design expertise. *Design Studies, 25*(5), 443-457. https://doi.org/10.1016/j.destud.2004.05.001

Lawson, B. (2005). *How designers think: The design process demystified*. New York, NY: Architectural Press.

Lawson, B., & Dorst, K. (2009). *Design expertise*. Oxford, UK: Elsevier.

Norman, D. (2013). *The design of everyday things*. New York, NY: Basic Books.

Olesova, L. & Campbell, S. (2019). The impact of the cooperative mentorship model on faculty preparedness to develop online courses. *Online Learning Journal, 23*(4), 192-213. https://doi.org/10.24059/olj.v23i4.2089

Oxman, R. E. (1994). Precedents in design: A computational model for the organization of precedent knowledge. *Design Studies, 15*(2), 141-157. https://doi.org/10.1016/0142-694X(94)90021-3

Parrish, P. E. (2006). Design as storytelling. *Tech Trends, 50*(4), 72-82. https://doi.org/10.1007/s11528-006-0072-7

Parrish, P. E. (2009). Aesthetic principles for instructional design. *Educational Technology Research Development, 57*, 511-528. https://doi.org/10.1007/s11423-007-9060-7

Richardson, J. C., Ashby, I., Alshammari, A. N., Cheng, Z., Johnson, B. S., Krausse, T. S., Lee, D., Randolph, A. E., & Wang, H. (2019). Faculty and instructional designers on building successful collaborative relationships. *Educational Technology Research and Development, 67*(4), 855-880. https://doi.org/10.1007/s11423-018-9636-4

Ritzhaupt, A. D. & Kumar, S. (2015). Knowledge and skills needed by instructional designers in higher education. *Performance Improvement Quarterly, 28*(3), 51-69. https://doi.org/10.1002/piq.21196

Rowland, G. (1992). What do instructional designers actually do? An initial investigation of expert practice. *Performance Improvement Quarterly, 5*(2), 65-86. https://doi.org/10.1111/j.1937-8327.1992.tb00546.x

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books Inc.

Schön, D. A. (1987). *Educating the reflective practitioner*. San Francisco, CA: John Wiley & Sons, Inc.

Shell, E. R. (2018). *The job: Work and its future in a time of radical change*. New York: Currency.

Tatar, D. (2007). The design tensions framework. *Human-Computer Interaction, 22*(4), 413-451. https://doi.org/10.1080/07370020701638814

Tracey, M. W., Baaki, J., Budhrani, K., & Shah, S. (2021). "Behind the curtain": exploring how instructional design teams function to complete design and development. *International Journal of Technology and Design Education, 1-19*. https://doi.org/10.1007/s10798-021-09632-w

Yngve, V. (1970, April 16-18). On getting a word in edgewise. In: *Papers of the Sixth Regional Meeting of Chicago Linguistic Society*, Chicago, IL. 567-577.

Appendix A

Unique professional discourses found in the literature

Problem-solving is the act of both establishing a problem and finding solutions to that problem. The very nature of design is to solve a problem of some kind. Lawson and Dorst (2009) refer to design problem-solving as the process of posing a problem, searching for solutions, exploring the consequences of these solutions, evaluating the consequences, and then choosing which solution fits best. In the field of IDT, the most prominent examination of problem-solving was via the creation of a typology of the types of problems IDs might encounter (Jonassen, 2000). This typology can help IDs address how to deal with the problems they may face in generating frames and solutions. This focus on problem solving will help us in "developing elaborate, multiple representations of problems along with learning to regulate different kinds of problem performance" (Jonassen, 2000, p. 82). Explicitly teaching students how to deal with different types of problems can help strengthen this skill of problem-solving.

Problem framing is how IDs view, see, or approach the problem they are faced with. Schön (1983) saw problem framing as viewing the problem or situation in a particular way. Problem framing is imposing our own constructs on a problem in order to better understand and find a solution to the problem. Dorst (2015) defines a problem frame as "the proposal through which, by applying a particular pattern of relationships, we can create a desired outcome" (p. 53). Problem framing is how a designer approaches the process of problem solving (Dorst, 2015). How a designer sees a problem determines the design solutions available to the designer. Problem framing is the beginning step in the problem-solving process.

Precedent in design is when a designer uses knowledge of a previous design to help frame or make decisions on a current design project (Oxman, 1994). The act of collecting precedent knowledge is not realized as such until that knowledge is used (Lawson, 2004). Once a designer uses a prior experience to help solve a current design problem, it becomes precedent knowledge. Precedent is "a recognized, specific design in which the unique

conceptual points and ideas are denoted as distinct knowledge chunks" (Oxman, 1994, p. 142). Designers store and use these knowledge chunks in future design projects that they believe share similar characteristics as prior experiences.

Usability refers to whether or not a product is usable. How to use a product should be inherent in an object that has been designed. An example used by Norman (2013) is that of a door. A door should intuitively tell us how to use it. If we are to push a door to open it, then a metal plate should be placed on the side where we should push. If we are to pull a door to open it, then a handle should be placed on the side we are to pull. Usability for Norman (2013) is the discoverability and the understanding that should be inherent in every designed product.

User experience refers to how the user of the product experiences that product. The user of a designed product is one of the most important aspects of design. How the user experiences the product defines the quality of that product. For Norman (2013) "experience is critical, for it determines how fondly people remember their interactions" (p. 10). User experience is now often referred to as UX design (Buley, 2013). In general, the user experience of a product refers to "the overall effect created by the interactions and perceptions that someone has when using a product or service" (Buley, 2013, p. 5). Considering how a user interacts with and perceives a designed product is a type of design expertise that is essential to the design process.

In the field of IDT, the experience of the user has been described as empathy for the learner and the aesthetics of a design (Parrish, 2006; 2009). The ability to see a product through a user's perspective has been noted as one of the most critical skills in IDT (Parrish, 2006). Through empathy for the learner, an ID is able to understand how a designed product would be experienced. The aesthetics of a design include empathy for the learner in considering the holistic and meaningful qualities of a learning experience. Through an evaluation of these aspects, IDs are able to improve the instructional design. Aesthetics, then, pushes past the surface qualities of a design (Was it easy to navigate? Was the user able to find everything they needed? Was it pretty?) to consider the engaging, meaningful, and immersive aspects of a design.

External representations are the sketches, illustrations, and text explanations by which designers work. Schön (1983) refers to external representations as design representations. Design representations are the drawings and sketches that are created during the design process. These representations allow the designers to visualize the solutions they are working on. Cross (2011) sees these external representations as a way to deal with the complexity of the design process. There is a limit to the complexity that a designer can struggle with internally. External representations help designers to deal with that complexity.

A tool could be a software program the designers were using to work on/complete their design or a specific feature of a particular tool. Tools could include learning management systems (Canvas, Blackboard, etc.), third party publishing platforms (Cengage WebAssign, MindTap, etc.) and other software programs to help in creating materials for online classes (Captivate, Microsoft Word, Microsoft PowerPoint, Quicktime, Zoom, etc.) Tools play a large role in the design process. Tools in IDT are both a means of creating instruction and also delivering instruction (Clark, 1994). The conversation surrounding tools in design has

centered around whether media influences learning (Clark, 1994; Kozma, 1994). Clark (1994) argues that tools are not integral to the design process; instead it is the instructional method employed that is the most important. Kozma (1994), however, argues that both tools and methods should be used equally in the design process as how they work together is what drives the design process and the learning that happens with the designed instruction.

In the design process, there are constraints and tensions that can arise that can end up driving the design process. Design tensions can be explained via a framework developed by Tatar (2007). This framework focuses on four levels of design tensions, which includes the tension inherent in the vision of the design project, i.e. the tension between what is and what ought to be, the tension inherent in the way the designer approaches the design problem, the project tensions where there are conflicts via the means, ways, and values to complete the project, and the “as created” tension from the consequences that arises from the new designed product. Design tensions in a project could fall under any of these levels and can affect the design decisions made by the ID.

Practitioner Perspectives on the Benefits of a Cross-Organizational Collaboration Between AECT and NATO

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Collaboration | Instructional Design | Practitioner

Collaboration is widely known to be beneficial in the workplace, with many job announcement analyses confirming it as a desired skill (Klein & Kelly, 2018; Lowenthal et al., 2010; Wakefield et al., 2012; Wang et al., 2021). During the COVID-19 pandemic, practitioners found new opportunities to collaborate with colleagues across industries. One such collaboration allowed instructional design practitioners in higher education to work with staff from a military organization on the design and development of content for a microlearning mobile app called NeNA. This paper will explore the benefits of cross-organizational collaboration and co-design on instructional design projects, such as better design, improved communication, and

increased effectiveness, using the NeNA project as an example.

Introduction

Practitioners in the instructional design field can look to many organizations to discover the competencies or capabilities expected (AECT, 2012; ATD, 2020; ISPI, n.d.; Hoard and Stefaniak, 2016). Although collaboration is not explicitly listed in every professional organization's list of suggested competencies, it is a skill expected in most workplaces. Researchers looking to identify instructional design competencies through job announcement analysis identified collaboration as one of those competencies (Lowenthal et al., 2010; Wakefield et al., 2012). More recently, Wang et al. (2021) and Klein and Kelly (2018) confirmed that collaboration is one of the top skills sought by employers of instructional designers. Despite its importance, collaboration is often a struggle for practitioners and their managers; Harvard Business Review research found that "32% of employees worldwide say people in their organizations don't collaborate enough" (Carucci & Velasquez, 2022, para. 3).

Collaboration has been an important skill for instructional designers for quite some time, and during the COVID-19 pandemic (COVID), practitioners found new opportunities to collaborate with colleagues across a variety of industries. One such collaboration that had to adapt to changes impacted by COVID was that of the North Atlantic Treaty Organization's Headquarters Supreme Allied Commander Transformation (NATO HQ SACT) and the Association for Educational Communications and Technology (AECT). The collaborators were NATO employees and AECT consultants, who formed a cross-organizational team to work on a mobile app called the NATO e-Learning Network Application, or NeNA.

NATO and AECT had entered their collaboration prior to the pandemic, and the pandemic impacted each agency differently. For AECT, there was less of an impact on the organization as a whole because AECT operated in a virtual world most of the year, whereas NATO did not. At NATO's 2021 hybrid technology and training conference, the AECT consultants learned how unprepared NATO and their allies were to carry on daily operations with the COVID shutdown. This forced hiatus provided unexpected opportunities to transition learning and development into a virtual environment, complicated by the need to ensure security measures affiliated with different topics and clearance levels. For AECT, all communications about the opportunity to join this collaboration had to be targeted to those in leadership positions who then shared it throughout their division's leadership boards. One of the key takeaways from this process was the need for all members of the collaboration to be flexible. Flexibility was seen in the recruiting process, meeting times, work times, sharing of ideas, and the need for self-management.

Collaboration at the organizational level sets the tone for the stakeholders actively achieving organizational goals, and those stakeholders can have both common and different interests that may change over the course of the project (Wood & Gray, 1991). Our interview with the NATO team leader revealed several details about the intent of the collaboration. NATO had

two goals for this collaboration. The first goal was designing microlearning content for a mobile app to be accessible by NATO employees in remote areas, such as when they were on duty and without Wi-Fi access, to continue to improve their performance. The second goal was to enable NATO to capture employees' implicit knowledge prior to the end of their tours of duty to prevent the knowledge loss that occurred every 18-24 months (C. Kumsal, personal communication, March 1, 2021). The AECT key stakeholder explained several reasons for the collaboration with NATO. For AECT, two key rationales emerged. First, AECT members were knowledgeable in learning theory and designing learning materials. AECT members' research skills would better enable NATO to fill its existing knowledge and research gaps. Secondly, this collaboration would provide authentic experiences for academics and graduate students. "It goes beyond reading to direct contact and becomes experiential in several areas with NATO and their member states" (T. Amankwatia, personal communication, February 24, 2023). Members would be able to build assessment, communication, design, development, and research skills in an authentic setting, while improving a member's résumé or CV.

In this paper, the terms partnership and collaboration are used interchangeably. The authors' view of collaboration is based on the seminal works of Gray (1989) and Wood and Gray (1991). In particular, the authors draw on Wood and Gray's revised definition of collaboration: "Collaboration occurs when a group of autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms, and structures, to act or decide on issues related to that domain" (p. 146). This paper will explore the benefits of cross-organizational collaboration and co-design on instructional design projects, such as enhanced design, communication, and effectiveness.

Background

Often, collaboration begins before the instructional designer (IDer) is introduced to the project, as was the case for the AECT members who served as consultants. The collaboration process of designing microlearning content for the NeNA app began at the organizational level with an alliance between NATO and AECT in 2018. However, the idea for this partnership was born even earlier when an AECT Design & Development Board Representative (D&D Board Rep) attended the NATO Training Technology Conference (NTTC). This annual conference gathers "representatives from academia, industry and military" to explore "how modern and emerging training technologies can add value to NATO's Education & Training" (NATO, 2022). The D&D Board Rep attended this conference for two years and recognized the gaps that NATO representatives were discussing at NTTC. This rep realized that the two organizations would make a good alliance where AECT members' expertise could address NATO's design and performance gaps. The D&D Board Rep spoke to AECT leadership to determine the best route for proposing a partnership with NATO. These efforts resulted in the microlearning knowledge exchange at NCCT as well as "collated resource lists of AECT mobile learning, microlearning, and virtual reality research and proceedings" (T. Amankwatia, personal communication, February 22, 2021).

From the above efforts, a formal letter of accord that was created and signed between NATO and AECT in 2018 was recently renewed for another four years. The accord outlined four key activities that were to occur as a result of the NATO AECT collaboration: "1. Knowledge

Exchange (AECT Research & Publications); 2. Experimentation (i.e., New Research); 3. Design and Development (with AECT members); and 4. Dialogue and Conversation (i.e., Conventions, meetings, symposia)" (T. Amankwatia, personal communication, February 24, 2023). As a part of this collaboration, NATO sponsors an annual design and development competition. In 2019, a student team created an app called Knowing NATO for the competition that would house microlearning modules (Dixon, 2019). The designs created for the competition were not typically developed or tested for deployment, but NATO was impressed with the microlearning app project. In 2021, they were ready to "develop a mobile application with various microlearning options" (T. Amankwatia, personal communication, February 22, 2021). This app, which is now known as NeNA, was designed to address human performance improvement challenges by providing just-in-time content. NATO, having developed an alpha version of the project, now needed support and guidance from AECT members to create microlearning content, beta test the app, create resources for users (e.g., a content creation checklist, microlearning tutorials, etc.), and gather user feedback. NATO specifically needed the content to adhere to microlearning tenets.

The success of the NeNA project relied on various teams working together collaboratively. The AECT consultants, or the AECT team, consisted of three members of the organization who had little to no prior experience working together. The NATO team consisted of the staff who were assigned to the project: a staff officer for training technologies and a project coordinator for the innovation branch of Headquarters Supreme Allied Commander Transformation (HQ SACT). There was also a media and design team that consisted of a third-party contractor and a NATO staff member, as well as a team of app developers from a third-party company. All these teams combined formed the overarching NeNA team responsible for the design, development, and evaluation of the project.

It was the second (experimentation) and third (design and development) key activities from the letter of accord between NATO and AECT that AECT consultants were recruited for within the NeNA app development plan. The consultants were informed that their project would test a pilot app for 700 people. Over the course of six months, they would lead the content development and testing of the app. It was clearly stated that all developers or testers had to be from a NATO country and that this project was a "real-world application" (T. Amankwatia, personal communication, February 22, 2021). Collaborators working on this project included AECT members from various institutions, third-party contractors for multimedia creation, NATO e-Learning employees, and NATO's staff officer for training technologies. During beta testing, the team worked with additional NATO employees to gain feedback on the design process and the usefulness of the app.

As Wood and Gray stated in their 1991 revised definition, stakeholders can have both common and different interests that may change over the course of the project. For AECT, the benefit was the ability to create authentic experiences for members where they could further develop and apply their knowledge and skills while filling gaps that NATO had in academic knowledge and research. For NATO, microlearning design, development, and technology could effectively and efficiently be implemented by knowledgeable stakeholders.

In their revised definition, Wood and Gray also mention the importance of stakeholders being autonomous. One of two key characteristics of the NATO AECT collaboration was the autonomy given to all the participating stakeholders. When a stakeholder was given a goal,

they were given the autonomy of determining the best process to meet that goal. For instance, the AECT consultants were tasked to redesign onboarding materials so that they would fit a microlearning design. Any media that needed to be developed was planned between the NATO team, the third-party contractor, and the AECT consultants. When the consultants ran into barriers or had recommendations about the app's design, the app development team was contacted to meet with the whole NeNA project team to brainstorm. If revisions were needed, the stakeholders would come together to discuss what would be the best way to achieve these revisions. In other words, the collaboration was an interactive process (Wood & Gray, 1991).

Interactive Design Process

Working in a collaborative setting is not always straightforward and can end up being an interactive design process. Being a member of a cross-organizational team emphasizes the challenges and opportunities that collaborating creates. However, the opportunities for this partnership outweighed the challenges that were to occur at an organizational level (T. Amankwatia, personal communication, February 24, 2023). As previously mentioned, the team that worked together during the beta testing period was multidisciplinary. There were representatives from AECT, NATO, and a third-party app developer. Further, individuals from AECT had varying backgrounds and professional experience. For example, although all the AECT consultants had educational backgrounds in instructional design and technology, one consultant had professional experience as a faculty member, while another worked on the staff side of higher education. Much of the NATO team had been working on this project since the collaboration began, whereas the instructional designers (AECT consultants) were new to the team.

One of the four overarching elements of Wood and Gray's (1991) collaboration framework is the role of the organization as a stakeholder and the influence the organization has regarding available resources. Like Wood and Gray, Bawa and Watson (2017) found the type of control the organization used in the collaboration determined the dynamics of the collaboration. This was made apparent to the AECT consultants throughout the beta testing period. For example, the NATO team leader and his project partner from NATO's innovation hub determined which features the microlearning app would have, even though they were not well-versed in learning theories or multimedia learning principles. In part, this was due to the available funding and the existing contract between NATO and the app developer. Another challenge that occurred at an organizational level was the restrictions on who could be recruited to join the team. Though both AECT and NATO are international organizations, NATO has limitations regarding who can be a member. AECT had to respect this condition, which meant that members in AECT from non-NATO member states could not participate in the partnership.

Encouraging a Stronger Culture of Collaboration

Though interdisciplinary teams will encounter challenges, as mentioned above, with conscious efforts, these challenges need not be detrimental to the success of the collaboration. One way to ensure a successful collaboration is to work with management and managers on the team to allow for delegation to occur. According to Harvard Business Review research (Carucci & Velasquez, 2022), a couple of the top reasons that collaborations fail are a lack of collaborative vision from managers and managers not wanting to relinquish control. This could happen for many reasons, including fear of being overshadowed and having a hard time trusting others. The NeNA project did not fail, and there are three tangible reasons for this. First, the vision of the collaboration was captured in the letter of accord between NATO and AECT. Second, there was a high level of trust and support from the manager of the NATO team. Finally, communication was open and efficient, and members from both organizations have continued to be actively involved in training and development initiatives together by attending and participating in conferences hosted by the two organizations.

Establishing Trust and Understanding

Another key element for successful collaborations is trust. Trust needs to be established upfront and maintained, regardless of the setting for the collaboration. In 2018, Richardson and colleagues explored the successful collaborations between IDers and faculty at a large midwestern university. Their interviews revealed four central themes: the purpose of the collaboration, the configuration of the stakeholder relationships, common barriers or supports for the collaboration, and competencies necessary for successful collaboration between faculty and designers. The first competency that Richardson et al. identified was building trust and rapport (p. 865). They found that almost all the stakeholders (faculty and instructional designers) reported that trust and rapport needed to be developed for productive joint relationships to occur. Based on participants' answers, the authors concluded that these types of relationships allowed stakeholders (faculty) to relax and increased buy-in to the collaboration.

The NATO team leader demonstrated his ability to create trust and rapport in the way he treated each team member. He assumed that all team members were competent, trusted their expertise, and valued their opinions. When he was asked questions that he could not answer, or if he was asked to help with a task where his skills were lacking, he quickly referred AECT consultants to the team members who could address these issues. He made himself readily available and responded to any type of correspondence quickly. All these behaviors demonstrate two types of trust essential for successful cross-functional teamwork, knowledge-based trust and identification-based trust (Scandura, 2016).

Like Richardson et al. (2018), Scandura (2016) discusses a core part of successful leadership is trust. In her book, Essentials of Organizational Behaviors, Scandura (2016) stresses the importance of establishing three types of trust that need to occur with another person. The first is calculus-based trust, where the ground rules are established. Like transactional leadership, the employee does what their employment contract states, and the employer fulfills their part by providing pay and agreed-upon benefits. If this is broken, there are consequences that occur. Scandura states that calculus-based trust is the “recordkeeping” type of trust, and the relationship is kept at “arm’s length” (p. 35). As the contract is kept, trust builds to the next level, which is knowledge-based trust. Here the

employer and employee have established patterns and find each other's behaviors predictable. The employer can now ask their employee to do different tasks and knows that the employee will complete them. In the collaboration with NATO, the AECT consultants found themselves in the unique position of the NATO team lead assuming that knowledge-based trust had been established. He treated the AECT consultants and the rest of the team as knowledgeable experts.

The NATO team lead's behaviors instantly created a foundation of trust and relationship building, which made the whole team demonstrate the third level of trust, identification-based trust. This level of trust is where the employee and the employers share the same goals and objectives (p. 36). If the employer or leader cannot be present for activities, the employees will carry on and take care of all necessary tasks to achieve the goals and objectives as if the leader were supervising. This level of trust could be seen in the assignments that the AECT consultants were given to complete. Another demonstration of this type of trust was when the NATO team asked for the AECT consultants to meet with NATO majors or generals to determine how to transition their trainings to fit a microlearning format. Further, the AECT consultants were asked to lead the conversations of creating microlearning content with one of NATO's training schools in Germany. These experiences enhanced the collaboration because the consultants gained confidence as a result of being trusted and viewed as experts rather than being overshadowed by those in positions of authority.

Open Communication

Communication is essential for success in any endeavor. A core component of successful communication is the ability to actively listen, which is fundamental to building and maintaining the knowledge-based and identification-based trust (Scandura, 2016). In the case of active listening in a virtual setting, such as the one experienced by the authors, applying active listening principles becomes even more important because there may be missing cues and differences in an interaction that makes it more difficult (Center for Creative Leadership, 2019).

The second key competency that Richardson et al. (2018) identified was being an active listener (p. 865). This skill is essential for the IDer to engage in for all stakeholders because IDers have the knowledge of how to design and implement content, but stakeholders may not readily know how to identify their needs (Richardson et al., 2018). In a study of ID technologists and trainers, Hoard and Stefaniak (2016) discovered a common theme that participants expressed was that communication and team building should be added to human performance technology practitioners' competencies. Klein and Kelly (2018) explored what competencies employers were seeking from potential IDers, and one of the top competencies was interpersonal communication skills. Communication was continually emphasized through various channels created for the team to communicate asynchronously.

In this collaborative partnership, the head of the NATO team scheduled regular communications, such as weekly check-in meetings via Skype. The team lead made sure that all persons attending were addressed and ended the meetings with assigned tasks for the following week. In between times, both email and WhatsApp were used for

asynchronous communication. Practitioners may find that having too many lines of communication available can be distracting, so it is important to define what works best for each collaborative team. The NeNA team found that certain tools worked best for regular meetings (e.g., Skype), while others were best for questions that needed immediate replies (e.g., WhatsApp) or questions that were not pressing and those that required more complex explanations (e.g., email).

Bawa and Watson (2017) used Wood and Gray's (1991) study to frame their study's protocols and concluded that there were nine core characteristics to create a productive collaboration which formed the acronym CHAMELEON, where the "C" stood for communication. Like Richardson et al. (2018), Bawa and Watson found that stakeholders emphasized the importance of active listening and regular communications. Bawa and Watson also found that another aspect of effective communication was making sure that the IDers asked good questions or were good questioners who would actively listen and use "gentle persuasion" techniques (p. 2343). In the case of the NATO/AECT collaboration, the AECT consultants asked questions not only to ensure understanding of instructions or content but also to show they were actively listening and wanting to create the highest quality content possible.

Transparency

Transparency is intricately related to communication. However, it is its own subcategory of communication because it needs to be intentional for any teamwork, especially cross-functional teams where vocabulary and skill sets are diverse. Transparency is more than just being clear about the goals and objectives needed to complete a project. As the NATO team lead stated, "Objectives need to be clear, transparent, and well communicated to the team" (C. Kumsal, personal communication, February 23, 2023). Transparency of goals and objectives was also emphasized by the AECT partner and was plainly illustrated in the letter of accord and key activities that were agreed upon by both organizations. A willingness to be transparent will require a leader and a team that has high emotional intelligence. Without clear communication and transparency successful delegation will not occur. Effective delegation is hard to do and you "[n]eed to take a risk with trust" (C. Kumsal, personal communication, February 23, 2023). The effectiveness in delegating, and in team building and effective collaboration overall, begins with transparency.

Benefits of Co-Designing

Enhanced Design

The above sections have explained and demonstrated what has made the collaboration between AECT and NATO successful. So what are the benefits of co-designing? Bawa and Watson (2017) noted three central benefits of better understanding stakeholders' perceptions in a collaboration. First, the demand for collaboration continues to rise between subject matter experts (SMEs) and IDers. Second, they contend that due to the increase in collaborative projects, strong teamwork skills will continue to be a job qualification and that effective collaboration improves the skill sets of all the stakeholders. Finally, they argued

that with the increase in collaborations, there is a knowledge gap about stakeholders' perceptions of collaborating. Where AECT consultants did not have certain skills, such as creating animations, other stakeholders took the time to train the team on how to use NATO's media design tools. Team members were also encouraged to seek out training from NATO's audio-visual tech team. This reinforces what Bawa and Watson stated as their second contention, that collaboration improves the skillsets of the stakeholders.

Bawa and Watson (2017) also noted that the design process was improved because of looping, the iterative design process (p. 2346), and oscillation (p. 2347), the use of trial and error. The NeNA team conducted an iterative design process in which users were onboarded to the app, and their feedback was used to make changes. Since SMEs, end users, and designers worked together in this iterative process, the design was improved, including the addition of important features like descriptive text and accessible colors and the addition of training modules to teach users not only about the operation of the NeNA app but also about the concept of microlearning. After going through several iterations and using trial and error to develop and test content within the app, the final product showed significant improvement compared to the initial design.

Improved Communication and Adaptability

As the cohesion of the NeNA team increased, communication noticeably improved. The AECT consultants were able to ensure their competing needs could be accommodated while accomplishing the desired goals and objectives of the project. In other words, adaptability was exercised on all stakeholder parts, and no one was being "pushed over" by too many demands (Bawa & Watson, 2017; Richardson et al., 2018). Both Richardson et al. and Bawa and Watson stressed the need for humility, particularly on the part of the IDer. However, this type of humility was regularly modeled by the NATO lead when he felt that something that other team members might need was not within his skill level. He stated that he could not help but then directed the question to the person on the team who could provide the help.

Although the consultants for the NeNA project were considered experts in microlearning and instructional design, they still had to be adaptable, as they had varying levels of experience working in different environments, and they were not experts in military operations or subject matter. Their adaptive analytical skills were important as the team worked to apply instructional design best practices in this specific environment (DeVaughn & Stefaniak, 2020). As a result of working in a new environment with a supportive, communicative team, the consultants felt their skills improved, and they learned new ways of communicating and collaborating with cross-organizational teams virtually.

Resources for Users

Sugar and Luterbach (2016) sought to identify critical incidents of ID and multimedia production. Their intention was to determine what constituted effective, ineffective, and extraordinary ID and multimedia production to create more clarity on best practices for ID. Two of the six themes that emerged from the incidents in their study included providing resources for users and collaboration with stakeholders. The NeNA project resulted in the AECT consultants creating products for the end user. The process of developing these

resources, such as a content creation checklist and microlearning tutorials, was tested by users to provide feedback on their usefulness. This allowed the AECT consultants the opportunity to revise the resources to make them more user-centered.

This iterative process of content and resource development supports what Sugar and Luterbach (2016) identify as extraordinary incidents, where there was a matching of methods and media to content and the learners. This was accomplished by getting user feedback and applying learning theories. In other words, theory was used to inform practice. Two theories that the AECT consultants based their content design on were Mayer's (2014) cognitive theory of multimedia and Sweller's (1994) cognitive load theory. Clark and Mayer's (2016) principles of multimedia learning were used as part of the design process as well as for creating a microlearning content creation checklist. These principles were also used to evaluate content once it was developed by NATO employees.

Increased Effectiveness and Efficiencies

Again, the first goal for NATO was to create a tool to improve employee performance that users could and would utilize. One of the best parts of this collaboration was the openness and desire of the end users to test the app and its functions as well as provide feedback on the content. Having the NATO design team be open to candid feedback enabled them to quickly reiterate and make changes seamlessly. It also allowed the team to provide better feedback to the app developers on NATO's specific needs to allow the goal of improved performance to be met. It is here where stakeholders' perceptions were being sought to improve the design and use of the app, which ultimately enhanced the product and experience. By doing this, NATO was ensuring that there would be buy-in from the end users, increasing the effectiveness of the NeNA app to improve employee performance.

The second goal, capturing employees' implicit knowledge, was more challenging. This was largely due to users not understanding how to create content focused on only one or two concepts that were "chunked." Users tended to provide their knowledge in various formats (e.g., graphics, presentations, podcasts), and the design team (AECT consultants and the head of the NATO team) quickly realized the need for a way to rapidly provide feedback as well as a need to provide a guide to assist SMEs and NATO employees from various areas in designing content. The AECT consultants called upon their knowledge of learning sciences and multimedia design principles to provide feedback to the users about how to design microlearning content. In addition to providing feedback directly via the app and email, the consultants developed a job aid that the management team could use after the AECT consultants' time on the team came to an end. The AECT consultants evaluated the available features of the app and recommended other features to explore as NATO transitioned into formally adopting the NeNA app as part of their learning and development efforts. These processes and experiences during this collaborative project reinforce Bawa and Watson's (2017) first two points, especially increasing the skill sets of all the stakeholders.

Concluding Thoughts

Two of the most essential skills necessary to ensure the success of a collaborative project between major organizations are communication and flexibility. As the NATO team lead expressed, teams should accept and celebrate diversity and use active listening. Further, team leaders must effectively delegate while accepting the expertise of the designers and SMEs (C. Kumsal, personal communication, February 23, 2023).

Overall, the AECT consultants' experiences with this collaboration proved beneficial at many levels. Throughout the project, it became apparent not only how including collaborators with diverse perspectives was essential but also how vital effective communication is when working with interdisciplinary collaborators toward a desired outcome. It is also imperative to consider the end user as a collaborator when designing and evaluating the products or services they will be using. This builds a more solid product and develops trust among designers and users, which helps ensure a higher quality product and a higher return on investment.

For future collaborations such as the one between AECT and NATO, the authors recommend taking the advice provided by the NATO team lead: "Be positive, communicate a lot, be clear in communications, be accountable to your work, trust the team and process, [and] show empathy" (C. Kumsal, personal communication, February 23, 2023). Because of this advice, the cross-organizational NeNA team was cohesive and efficient, and the project was a success.

References

Association for Educational Communications and Technology. (2012). *AECT standards, 2012 version*. Retrieved March 1, 2023 from https://www.aect.org/docs/AECTstandards2012.pdf

Association for Talent Development. (2020). *ATD's new capability model introduces the capabilities talent development professionals should have to be successful.* Retrieved March 1, 2023 from https://www.td.org/magazines/td-magazine/competency-out-capability-in

Bawa, P., & Watson, S. (2017). The chameleon characteristics: A phenomenological study of instructional designer, faculty, and administrator perceptions of collaborative instructional design environments. *The Qualitative Report, 22*(9), 2334–2355. https://doi.org/10.46743/2160-3715/2017.2915

Carucci, R., & Velasquez, L. (2022). *When leaders struggle with collaboration*. Harvard Business Review. https://hbr.org/2022/12/when-leaders-struggle-with-collaboration

Gray, B. (1989). *Collaborating: Finding common ground for multiparty problems*. Jossey-Bass Publishers.

Center for Creative Leadership. (2019). *Active listening: Improve your ability to listen and lead (2nd ed.)*. Center for Creative Leadership.

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. Wiley. https://doi.org/10.1002/9781119239086

DeVaughn, P., & Stefaniak, J. (2020). An exploration of how learning design and educational technology programs prepare instructional designers to evaluate in practice. *Educational Technology Research and Development, 68*, 3299–3326. https://doi.org/10.1007/s11423-020-09823-z

Dixon, R. (2019). *ITLS students take first place in NATO design competition*. Emma Eccles Jones College of Education and Human Services. Retrieved from https://cehs.usu.edu/news/2019/nato-design-competition

Hoard, B., & Stefaniak, J. E. (2016). Knowledge of the human performance technology practitioner relative to ISPI human performance technology standards and the degree of standard acceptance by the field. *Performance Improvement Quarterly, 29*(1), 9–33.

International Society for Performance Improvement. (n.d.). *Performance standards.* Retrieved March 1, 2023 from https://ispi.org/page/CPTStandards

Klein, J. D., & Kelly, W. Q. (2018). Competencies for instructional designers: A view from employers. *Performance Improvement Quarterly, 31*(3), 225–247.

Lowenthal, P., Wilson, B. G., & Dunlap, J. C. (2010). An analysis of what instructional designers need to know and be able to do to get a job. In annual meeting of the Association for Educational Communications and Technology. Anaheim, CA.

Mayer, R. E. (2014). Cognitive theory of multimedia learning. In R. E. Mayer (Ed.), *The Cambridge Handbook of Multimedia Learning* (pp. 43–71). Cambridge University Press. https://psycnet.apa.org/doi/10.1017/CBO9781139547369.005

North Atlantic Treaty Organization. (2022). *NATO training technology conference 2022 explored modern technology to improve operational readiness*. NATO Allied Command Transformation. https://www.act.nato.int/articles/nttc-explores-modern-technology-improve-operational-readiness

Richardson, J. C., Ashby, I., Alshammari, A. N., Cheng, Z., Johnson, B. S., Krause, T. S., Lee, D., Randolph, A. E., & Wang, H. (2019). Faculty and instructional designers on building successful collaborative relationships. *Educational Technology Research and Development, 67*, 855–880. https://doi.org/10.1007/s11423-018-9636-4

Scandura, T. A. (2019). *Essentials of organizational behavior*. Sage.

Sugar, W. A., & Luterbach, K. J. (2016). Using critical incidents of instructional design and multimedia production activities to investigate instructional designers' current practices and roles. *Educational Technology Research and Development, 64*, 285–312. https://doi.org/10.1007/s11423-015-9414-5

Sweller, J. (1994). Cognitive load theory, learning difficulty, and instructional design. *Learning and Instruction, 4*(4), 295–312. https://doi.org/10.1016/0959-4752(94)90003-5

Wakefield, J., Warren, S., & Mills, L. (2012, March) Traits, skills, and competencies aligned with workplace demands: What today's instructional designers need to master. In P. Resta (Ed.), *Proceedings of society for information technology and teacher education international conference 2012* (pp. 3126–3132).

Wang, X., Chen, Y., Ritzhaupt, A. D., & Martin, F. (2021). Examining competencies for the instructional design professional: An exploratory job announcement analysis. *International Journal of Training and Development, 25*(2), 95–123. https://doi.org/10.1111/ijtd.12209

Wood, D. J., & Gray, B. (1991). Toward a comprehensive theory of collaboration. *The Journal of Applied Behavioral Science, 27*(2), 139–162.

Understanding Collaborative Design Practice Through Self-Study

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Collaborative Design
Online Teacher Professional Development.
Pedagogy
Self-Study
Technology

Designing online teacher professional development (oTPD) grounded in participatory practices is complex. An intense interdisciplinary collaboration of teacher educators, online learning experts, and instructional designers is needed. Achieving shared understanding is essential for successful collaboration, yet varied perspectives of interdisciplinary experts can cause tensions. Under the right conditions, conflict can be positive and productive. This study of collaborative design practice examined the process of aligning technology and pedagogy when designing participatory oTPD using the self-study methodology. Data analysis revealed relevant interrelationships and uncovered a consistent pattern related to purposeful use of technology.

While self-study was an effective inquiry method and provided valuable insights into our practice, it also fostered an environment of trust and collaborative knowledge exchange necessary for successful joint problem solving, cognitive synchronization, and innovation in interdisciplinary design teams.

Introduction

Teacher professional development (TPD) is critical for improving the quality of education and helping students acquire complex 21st-century skills (Darling-Hammond et al., 2017; Fischer et al., 2018). Effective TPD programs assist teachers in developing research-based pedagogical expertise as well as nuanced responses to emergent dilemmas and situated problems encountered in everyday practice, which necessitate shifts in beliefs, attitudes, knowledge, and practices, i.e., teacher change (Desimone & Garet, 2015; Guskey, 2002). Research has consistently identified TPD characteristics associated with teacher change and enhanced student achievement as being situated, collaborative, inquiry-oriented, and incorporating principles of active and adult learning theories within professional communities of practice (Borko et al., 2010; Darling-Hammond et al., 2017; Dede et al., 2009; Desimone & Garet, 2015; Penuel et al., 2007). Teachers' attitudes, beliefs, knowledge, and practices are further transformed when they see modeling of effective practices, experience them from a learner's perspective, integrate learning with issues in their daily practice, have opportunities for reflection, and receive feedback and expert support (Mezirow, 1997; Guskey, 2002). We characterize these TPD approaches as participatory, recognizing learning as a transformation in contrast to content-driven and objectivist instructional methods that view the learning process as a transmission or a transaction.

In response to the COVID-19 pandemic and pressures for more flexible and cost-effective solutions, teacher educators worldwide are generating innovative online and blended approaches where teachers can actively engage in learning on demand and at their pace, including participatory online TPD (Lay et al., 2020). Although implementing specific TPD features is contextually dependent and varies substantially (Opfer & Pedder, 2011; Parsons et al., 2019), research suggests that integrating pedagogy-based characteristics positively impacts teacher change independently of the delivery mode (Borko et al., 2010; Dede et al., 2009; Fishman et al., 2013; Powell & Bodur, 2019). Specifically, the pedagogical theory behind designs rather than the medium determines the achievement of learning outcomes (Fishman et al., 2014; Moon et al., 2014), clarifying the media comparison conundrum in the TPD context.

This reasoning provided a foundation for a larger design-based research project, of which this study is only a small part. In partnership with several local school districts, our university

had a successful in-person TPD program that included distance education elements and integrated technology. To serve a larger population of teachers, especially teachers in rural areas, we needed to transform the program for online delivery, and we invited local online learning experts and instructional designers to help us accomplish that. The alignment of technology with pedagogy was particularly interesting during this project's phase. We wanted to ensure we purposefully used available technology to accomplish our pedagogical intents and adapted the program design and processes to meet those requirements. This study examined collaborative decision-making in the context of designing participatory online teacher professional development (oTPD) and focused on aligning technology tool choices with the underlying pedagogy requirements using the self-study methodology (Berry, 2015; LaBoskey, 2004).

Background Literature and Theoretical Framework

Designing online teacher professional development (oTPD) grounded in participatory practices is complex. Successful oTPD design solutions

> *need to be actively developed with an eye firmly on our best theories of how people, and teachers in particular, learn. The other eye needs to look toward the affordances of new technologies and how they might be incorporated … to support teacher (and student) learning effectively and efficiently. (Fishman et al., 2014, p. 263)*

This quote highlights three aspects that need to be considered. First, careful attention needs to be paid to how teachers learn and transform their practice, recognizing and utilizing pedagogies that bring about the needed teacher change (e.g., Borko et al., 2010; Darling-Hammond et al., 2017; Dede et al., 2009; Guskey, 2002). This can be accomplished through identifying core attributes within the design's pedagogical layer (Gibbons, 2014; Darling-Hammond et al., 2017; Dede et al., 2008; Guskey, 2002). Second, selected pedagogies and instructional strategies should guide choices of technology tools based on how they promote learning and meaning making (Antonenko et al., 2017; Bower, 2009; Graham et al., 2014; Fishman et al., 2013, 2014). Third, engaging and integrating various theories from related yet distinct fields of teacher education, online learning, and instructional design in coherent and strategic ways is necessary (Ertmer & Newby, 2016; West et al., 2020; Yanchar & Gabbitas, 2011). Such efforts cannot be successfully carried out by an individual or a group of educators from a single field. Intense interdisciplinary collaboration is needed (Darling-Hammond et al., 2017; Dede et al., 2009; Fishman et al., 2014). The following sections will examine these three points more closely.

Core Attributes and Design Layers

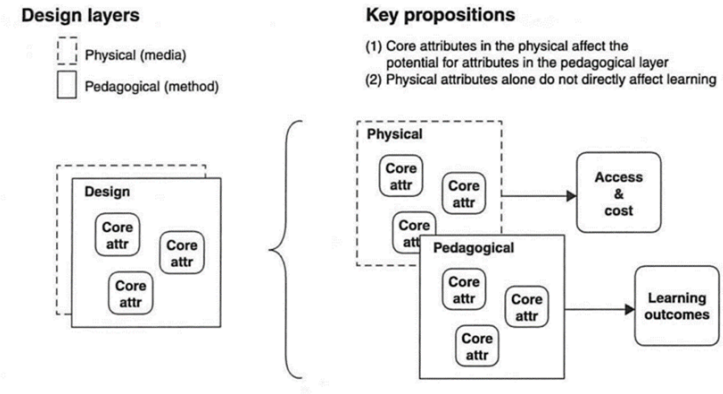
Successful oTPD solutions require careful attention to pedagogy during the design and development process. From teacher educators' perspective, this means bringing about teacher change by creating transformative learning experiences where deep knowledge and complex understanding emerge through dialogue and collaborative participation in carefully

designed, contextualized activities supported by experienced educators (Borko et al., 2010; Darling-Hammond et al., 2017; Dede et al., 2009). When these learning experiences occur in technology-mediated environments, design teams must carefully consider which technology tools to use to support teacher learning based on the functions those tools afford (Fishman et al., 2013, 2014; Hofmann, 2019).

Instructional designs can be conceptualized as structures of intersecting layers (Gibbons, 2014). Each layer has a function and is guided by its specific theories. Although layers may be viewed separately, they overlap and interact in multiple ways. "Decisions made within one layer constrain decisions within other layers either by eliminating or creating design possibilities" (Gibbons, 2008, p. 173). Synchronizing the layers improves overall instructional design and optimizes functionality. When designing oTPD, the two primary drivers are pedagogy and technology. To align these structures, designers should focus on the relevant design layers and adjust the remaining design to meet these primary conditions. Graham and colleagues (2014) simplified Gibbon's model to show how designers could research and manage design attributes to bring about desired learning outcomes, which was particularly relevant to this study. They explained that technology-mediated instructional designs could be envisioned as having two key layers: pedagogical and physical (See Figure 1). The physical design layer, exemplified by the surface features of presentation and delivery, is related to the medium, technology tools, and corresponding affordances. It strongly influences the cost and access options of the instructional solution, often making it the focus of the design and development process. The pedagogical layer and its core attributes are less visible, yet they enable the achievement of the desired learning outcomes and are critical for the overall success of the design (Graham et al., 2014).

Figure 1

A Visual Representation of Design Layers Proposed by Graham et al. (2014)



Core attributes within the pedagogical layer define the design's operational principles. It is the guiding instructional strategy, the essence of what makes the design work (Gibbons, 2014). A clearly articulated pedagogy-based instructional strategy could guide designers in deliberately arranging artifacts, orchestrating interactions, structuring interventions, and using technology to increase the likelihood of achieving intended outcomes. It directs designers in their choices of technological tools and how they are used for instruction, directly influencing which learning opportunities and experiences are available (Brown, 1992;

Gibbons, 2014; Graham et al., 2014). Graham and colleagues do not mention specifics of how to identify design core attributes and align the design layers. Brown, in her 1992 seminal piece, suggests we ground designing interventions in "theoretical descriptions that delineate why they work" (p. 143), asking ourselves, "what are the absolutely essential features that must be in place to cause change" (p. 173). Gibbons explains that to identify design's operational principles, researchers may meticulously isolate features and analyze their impact, while designers could take a more practical iterative subtraction and trial-and-error approach until they find the features without which the design no longer works as intended (2014).

Aligning Pedagogy and Technology

Several researchers focused on the process of aligning technology with pedagogy when designing technology-mediated instruction using the concept of affordances (e.g., Antonenko et al., 2017; Bower, 2008; Osborne, 2014). Affordances are broadly defined as 'action possibilities' that a tool provides to an actor (Bower, 2008). Bower (2008) proposed aligning the affordances of available technologies with the required affordances of learning tasks. Antonenko et al. (2017) suggested aligning the functional affordances of selected technological tools with the needs of learners and educators in specific educational contexts. Osborne takes on an ecological approach and suggests redefining affordances as 'transaction possibilities,' viewing technology as having the power to create environments suitable for intellectual work and collaboration, such as connecting, planning, negotiating, curating, editing, and reflecting (2014). He then puts forward the idea of using affordances as a design tool for aligning pedagogy and technology.

We carefully considered all these approaches and recognized that Bower's (2008) required affordances of learning tasks and Antonenko et al.'s (2017) needs of learners and educators were related to the core attributes within each design's pedagogical layer, i.e., what is needed pedagogically. On the other hand, the functional affordances of technological tools were related to Graham and colleague's physical design layer (2014), i.e., what technology can do and what kind of environments it can create. Viewing affordances as related to core attributes within individual layers creates a functional design tool to facilitate the alignment, enabling designers to intentionally select technological tools for pedagogical purposes and optimize the overall design solution (Antonenko et al., 2017; Bower, 2008; Graham et al., 2014; Osborne, 2014).

Collaborative Design

Collaborative design refers to the process of designing a product or solution through a collective effort involving multiple stakeholders—designers, subject matter experts, clients, users, and other relevant parties. Its main goal is to bring together diverse perspectives, knowledge, and expertise of different individuals to create a more effective, efficient, innovative, and sustainable outcome (Samaras et al., 2019; Tessier, 2020). In the TPD context, we often see co-design studies where teachers actively engage in collaborative design teams as a form of professional development, collaboratively adjust and develop curriculum, implement curriculum reform, and hone their knowledge, teaching practice, and design expertise in the process (e.g., Ke et al., 2023; Kelly et al., 2019; Ko et al., 2022; Severance & Krajcik, 2018; Penuel et al., 2022; Voogt et al., 2015, 2016). In contrast, this

paper focuses on the collaborative design practice of interdisciplinary experts, specifically decision-making related to aligning technology and pedagogy while designing oTPD. Teachers and program facilitators provided user feedback during evaluation cycles but were not directly involved in this collaboration.

Solving complex design problems, such as designing high-quality oTPD, demands intense interdisciplinary collaboration of experts with varied backgrounds. “Different team combinations can be put together according to the context and the problem investigated” (Tessier, 2020, p. 662). Careful orchestration of content, pedagogical, and technological expertise, as well as instructional design knowledge and skills, are needed. Our project engaged teacher educators and experts in online learning and instructional design. Each group brought the needed theoretical understanding and practical expertise from their discipline. Additionally, individuals had varied cross-disciplinary experiences. Literature suggests that interdisciplinary collaboration is conducive to creative thinking and innovation as varied perspectives of individual members help teams analyze broader contexts and solve multifaceted problems creatively (Augsten & Gekeler, 2017; Moirano et al., 2020; Severence & Krajcik, 2018; Tessier, 2020). Collaboration in interdisciplinary teams improves the resulting design, its enactment, and successful implementation. It also positively influences participants’ pedagogical knowledge, design knowledge, and related skills and practices (Samaras et al., 2019; Voogt et al., 2016).

Collaborative design efforts typically involve open communication, exchange of knowledge, shared decision-making, and a willingness to compromise to reach a common goal. In the early stage of the design process, the emphasis is on understanding the problem, defining constraints, establishing shared goals, brainstorming ideas, and finding an initial solution to the design problem (Tessier, 2020, 2022). Achieving shared understanding and a common mindset is essential for successful collaboration yet can be challenging due to tensions arising from different theoretical perspectives (Augsten & Gekeler, 2017; Piirainen et al., 2009; Tessier, 2020, 2022). We recognized early on that interdisciplinary collaboration between teacher educators, online learning experts, and instructional designers introduces many friction points and potential misunderstandings. Although all educators, each group has different goals and notions about learning, instruction, and design. Language use and terminology overlap but do not necessarily match. Views of the learner, the teacher, and their roles are different. Even overall theoretical orientation, specific theories and frameworks, and related methods may be fundamentally conflicting and seemingly incompatible. Tensions related to preferred models of instruction, the design process’s primary focus, and the theory vs. practice divide were particularly evident in our collaboration (Allman & Pinnegar, 2020). Such misunderstandings and frictions can be overcome by establishing an open atmosphere of mutual trust and respect, developing a commitment to working together, building a common language, and making reasoning explicit (Piirainen et al., 2009; Tessier, 2020; Samaras et al., 2019; Voogt et al., 2016). Others have suggested examining assumptions, both theoretical and philosophical, especially when incorporating multiple and potentially conflicting theories into the design (McDonald et al., 2005; Yanchar & Gabbitas, 2011). Thoughtful reflection and respectful dialogue allow group members to explore dilemmas and conflicts, uncover underlying assumptions and beliefs, and negotiate shared spaces (Tessier, 2022; Samaras et al., 2019).

As the project progresses, issues are covered in depth, participants share their tacit and disciplinary knowledge, join in decision making, and negotiate solutions capitalizing on each other's expertise (Tessier, 2020, 2022). Knowledge exchange and collaborative work stimulate the development of group members' individual expertise and the co-construction of new knowledge at the team level (Moirano et al., 2020; Samaras et al., 2019; Tessier, 2020; Voogt et al., 2016). However, integrating deep perspectives, generating novel ideas, and refining the design may introduce further tensions, disagreements, conflicts, and even epistemic clashes (Moirano et al., 2020; Tessier, 2020, 2022). Under the right conditions, the presence of conflict can be positive. It could overcome inertia, more deeply engage team members, focus group efforts, build stronger relationships, improve exploration of divergent viewpoints, and generate innovative solutions (Moirano et al., 2020). In fact, overcoming shared challenges and coming to an agreement in an environment of mutual trust may be one of the mechanisms for collaborative groups to iteratively build more robust communication systems, foster a higher level of cohesion, and transform working together into synchronized and synergistic efforts reflective of expansive transformation (Engeström & Sannino, 2010; Tessier, 2022; Voogt et al., 2015).

Purpose of the Study

This study of collaborative design practice examined decision-making in the context of designing participatory oTPD. Specifically, we explored the process of aligning pedagogy and technology using the self-study methodology. Two strands of inquiry were pursued: (1) to identify the elements, processes, and principles guiding the alignment of technology with pedagogy and (2) to better understand and improve our design practice and collaborative work.

Methods

The study was conducted within a larger design-based research (DBR) project (McKenney & Reeves, 2019) to redesign an in-person TPD program into an online modality while retaining its participatory character. The self-study methodology (Berry, 2015; LaBoskey, 2004; Pinnegar & Hamilton, 2009) guided the inquiry into the design process. It was selected as a suitable approach to guide a systematic and reflective examination of our situated practice to better understand and improve the practice (Pinnegar & Hamilton, 2009). Specifically, we examined decision making related to aligning technology with pedagogy during the oTPD design process by attending to the particulars and the context, reflectively uncovering assumptions and embodied understanding, and retrospectively reviewing enacted practice to identify patterns.

Self-study of teaching and teacher education practices, abbreviated as self-study, is a research methodology for collaboratively studying professional practice. Although typically conducted within teacher education contexts, it is applicable in other professional settings as "a way to move beyond technical rationality toward a more productive understanding of professional knowledge" (Bullock & Russell, 2012, p. 1). This relational ontology-oriented methodology positions investigators as the researchers and the researched, affording unique insights into patterns within the data (Berry, 2015). It is self-initiated, focused,

improvement-aimed, collaborative, uses multiple primarily qualitative methods, and defines validity as trustworthiness (LaBoskey, 2004). Rigorous cycles of dialogue with extant literature and critical friends—researchers, professionals, and practitioners—introduce multiple and alternative perspectives into the meaning-making process, enable a careful inspection of inquiry strands and emerging tensions, and allow an exploration of viable solutions (Hamilton & Pinnegar, 2017). The knowledge produced through self-study helps practitioners reframe their personal understanding of practice and stimulates the development of knowledge of practice within a practice community. Combining deep reflection about one's practice with reciprocal, thoughtful, and insightful feedback from peers in collaborative partnerships creates a hypothesis space where practitioners make tacit knowledge explicit. Over time, this understanding acts as a lever, transforming one's practice and building both individual and collective capacity (Samaras et al., 2019).

Participants and Data Sources

Participants in this study were the researcher, an instructional designer, and a senior teacher education faculty member. The researcher, a doctoral student in instructional design, has a background in applied linguistics and experience in TPD design, teaching, and research. The collaborating instructional designer has a Ph.D. in instructional design and broad K-12 teaching and online design experience. The senior faculty member, a teacher educator with extensive experience in curriculum design and pedagogies representing sociocultural theory, is also a scholar in narrative research and self-study qualitative methodologies.

Data consisted of nineteen collaborative conversation recordings and related artifacts analyzed in detail. Collaborative conversations took place regularly over six months; their average length was 60 minutes. The researcher analyzed recorded meetings and related artifacts working with the senior faculty member as a critical friend.

Procedures and Data Analysis

The following procedures within the self-study and DBR methodology guidelines were used to identify the elements, processes, and principles guiding the alignment of technology with pedagogy during oTPD design. First, the collaborative discussions and related artifacts were recorded, transcribed, and verified for accuracy, and the initial codes and conceptual categories were identified from the raw data. Process tracing (Bennett & Checkel, 2015) and constant comparative qualitative analysis techniques (Corbin & Strauss, 2008) were used to look beyond the initial codes for themes, patterns, and their relationships to the core phenomenon of aligning technology with pedagogy. The steps of standard qualitative analysis were followed (Cresswell & Poth, 2018). The process was iterative rather than linear, as data was continuously collected, analyzed, and interpreted, informing the subsequent cycles of inquiry. This recursive nature energized the research process and transformed our thinking, bringing new insights, uncovering oversights, generating additional questions, and revealing further directions (Pinnegar & Hamilton, 2009).

As part of the conceptual analysis, both similarity-based and contiguity-based relationships were explored (Maxwell & Miller; 2012). These two types of relationships are fundamentally different yet complementary and mutually support and improve the quality of qualitative data analysis. As is typical for qualitative research, similarity guided us to identify themes

based on the resemblance of common features. Attention to contiguity allowed the juxtaposition of data in time and space, identifying the 'actual' connections rather than the 'virtual' connections of similarities and differences, which was valuable while scrutinizing processes (Maxwell & Miller, 2012).

Trustworthiness

Trustworthiness in this study was established with multiple investigators, member checks, and reflexivity improving the account's credibility, dependability, and confirmability (Cresswell & Poth, 2018). Audit trail, exemplar validation, and negative case analysis were also used to increase the trustworthiness of the findings and reduce potential bias (LaBoskey, 2004). Additionally, attending to contiguity and similarity when exploring patterns in data guarded the researchers against overgeneralizing by aggregating data and losing diverse contextual connections potentially relevant to the analysis, further supporting the credibility of the findings and trustworthiness of the overall study (Maxwell & Miller, 2012).

Findings

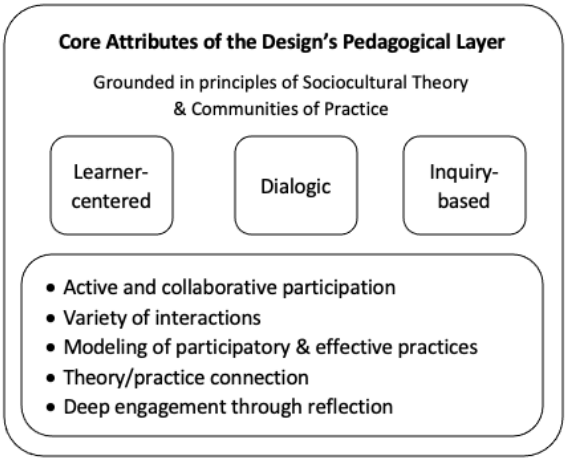
Several results are presented in this section. First, core attributes identified in the initial stages of the design process are reviewed. Second, themes identified in the analysis of collaborative conversations through axial coding are described. Third, patterns revealed by looking beyond themes for contiguity relationships are explained.

Design Core Attributes

During the initial design stages (i.e., front analysis), researchers identified design core attributes that were anticipated to lead to the desired learning outcomes. It was hypothesized that attending to the design core attributes during the design process would preserve the participatory character in the online modality and maintain the program's transformational power. The core attributes in the context of this study were determined based on the institutional and department specifications, extant literature related to effective TPD practices, and researchers' prior experiences with developing and implementing related endorsement programs. Other relevant design specifications, such as current state and federal requirements, also guided selection. The design core attributes were identified as (a) learner-centered, dialogic, and inquiry-based instruction grounded in principles of sociocultural theory and communities of practice, enacted through a design that (b) promotes active and collaborative participation, encourages a variety of quality interactions, models participatory practices, facilitates theory-to-practice connection, and fosters deep engagement through reflection (see Figure 1).

Figure 1

Identified Pedagogical Core Attributes



Themes Identified through Axial Coding

Next, the analysis of collaborative conversations carried out during the design and development stage revealed important elements related to the alignment of technology with pedagogy during the process. See Table 1 for a summary of themes and related elements identified from the data. Attention to tasks was identified as central to the alignment process. It was represented in the data as talking about one or more of the following: (a) the desired results of the instruction (e.g., overall goals, instructional objectives, learning outcomes), (b) acceptable evidence of learning (e.g., summative and formative assessments), and (c) learning activities and associated instructional components. All three elements were considered fundamentally interrelated, i.e., dynamically connected and mutually dependent.

Table 1

Themes and Elements Identified Through Axial Coding

Themes	Elements
Theme 1: Attention to Tasks	Desired results Evidence of learning Learning activities
Theme 2: Dimensions	Pedagogy Technology
Theme 3a: Core Components	Anticipated response to instruction Learners' needs Instructors' needs Task context
Theme 3b: Core Approaches	Collaboration Interaction Dialogic learning

Themes	Elements
Theme 3c: Core Methods	Modeling Scaffolding Coaching & mentoring Theory-to-practice connection Reflection
Theme 4: Quality and Effectiveness	Instructor support Course feedback Course evaluation

Two contexts or dimensions emerged from the collaborative discussions: pedagogy and technology (Theme 2 in Table 1). When tasks were discussed, it was done within either one or both dimensions. Ideas within the pedagogical dimension were related to identifying the learning event's parts or processes that would contribute to meeting instructional objectives and were tied to pedagogical thinking aiming to successfully 'translate' the learning event into an online modality. The dimension of technology represented similar ideas as the dimension of pedagogy. However, attention was paid to how the task could emerge in the online design, considering how available technology tools and their affordances might fulfill identified pedagogical purposes.

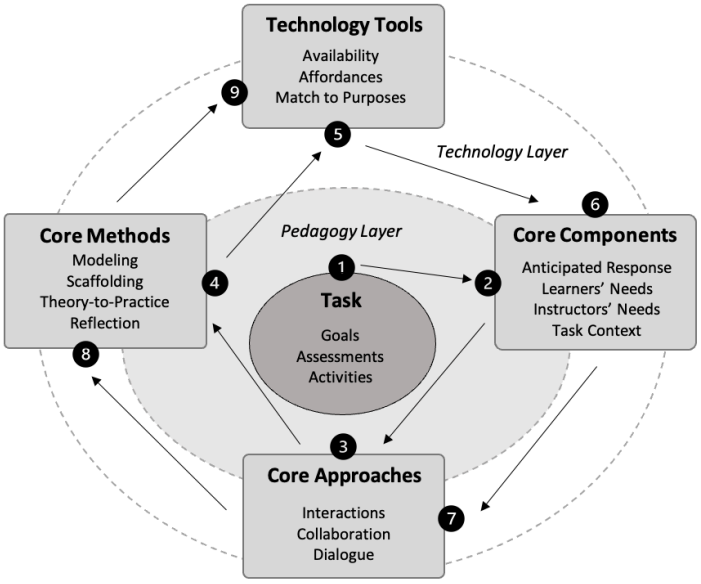
Analyzed data further suggested that the alignment between pedagogy and technology choices occurred as the participants paid attention to the core components of instruction (Theme 3a), strategically utilized core approaches to carry out the instruction (Theme 3b), and intentionally applied core methods to support the instruction (Theme 3c). The core components (Theme 3a) included ideas related to considering an anticipated response to the instruction, attending to the learner and their needs, attending to the instructor and their needs, and paying attention to the context of the task. The core approaches (Theme 3b) were represented as encouraging active collaboration, planning for a variety of interactions with content, peers, and the instructor, and facilitating learning through dialogue. The core methods (Theme 3c) were represented in the data as attending to modeling effective practices, scaffolding instruction, connecting theory to practice, and supporting regular and meaningful reflection. Finally, the theme of quality and effectiveness of the design with its elements represented topics related to instructor support, course feedback, and course evaluation (Theme 4 in Table 1).

Patterns of Contiguity-Based Relationships

Axial coding was further explored by looking beyond similarity for contiguity-based relationships, specifically temporal and spatial relationships within collaborative conversations (Maxwell & Miller, 2012). When the coding themes were reexamined with attention to the process (temporal relationship), a clear cyclical pattern appeared, confirming the existence of these themes in relation to each other (see Figure 2). Examining tasks (Theme 1) was at the center of the process, progressively attending to the core components (Theme 3a), making strategic choices using core approaches (Theme 3b) and methods (Theme 3c), followed by an intentional selection of technological tools to successfully enact specific tasks in an online modality (Theme 2). See Figure 2 for a visual representation of the observed process of alignment.

Figure 2

A Visual Representation of the Alignment Process



The process typically began with focusing on a learning task (1) represented by any or all its elements. Then the core components of instruction were examined (2): the learners' needs in specific contexts were considered, the learner's response to instruction was anticipated, and the needs of the instructor were considered. This was generally followed by attending to the core approaches (3), such as planning for a variety of quality interactions, active collaboration, and ways to promote dialogue. Next, the core methods that would support desired learning experiences were examined (4). This initial cycle of attending to pedagogy was followed by intentionally selecting technology tools that would enhance identified pedagogical purposes, attending to the tools' availability and affordances (5). Next, participants examined how the task would emerge as a learning experience for a learner using the selected technology, which involved attending to any or all of the core components (6), reexamining and adjusting types of interactions, collaborations, and dialogue required and enabled by the selected tool affordances (7), and finalizing and adjusting methods as needed (8). If necessary, more cycles were explored (9) until a satisfactory alignment of the pedagogical purposes with the affordances of selected technological tools was reached.

Discussion

This study explored the process of aligning technology with pedagogy in the context of collaboratively redesigning participatory oTPD courses. The goal was to better understand and improve our collaborative design processes and practice. To answer this study's research questions, we utilized the self-study methodology (Berry, 2015) within the design-based research approach (McKenney & Reeves, 2019). During the conceptual analysis, we also explored similarity and contiguity-based relationships (Maxwell & Miller, 2012).

Careful analysis of collaborative conversations revealed specific elements and interrelationships and uncovered a consistent pattern of aligning technology choices with the underlying pedagogy within the context of the study. Attention to tasks was identified as central to the alignment process, represented by desired results, evidence of learning, and instructional activities, reflecting the use of the backward design framework (Wiggins & McTighe, 2005) during the design process. Two dimensions were identified from the data. Tasks were always discussed either with attention to the underlying pedagogy or with a goal to enact the pedagogical intents in an online setting, taking advantage of the affordances of available technological tools. This finding is linked to our goal to align pedagogical and physical design layers (Gibbons, 2014; Graham et al., 2014) and to the iterative process of matching affordance requirements with the affordances of available tools (Antonenko et al., 2017; Bower, 2008; Osborne, 2014).

The analysis highlighted the importance of pedagogical thinking when designing oTPD. Although considering available technological tools with related affordances was essential, the underlying pedagogical thinking guided the alignment process and enabled the purposeful use of available technologies. Upon closer review, the core components paralleled Schwab's (1971) four commonplaces of curriculum making, suggesting that considering the learner, the teacher, the subject matter, and the milieu is valuable when designing online courses and individual tasks within those courses. Furthermore, identifying core approaches and core methods as key themes related to the alignment pointed to the utility of the core attributes during the design process, as suggested by Graham and colleagues (2014). Not surprisingly, core approaches and core methods resembled the core attributes identified during the front-end analysis. Repeated attention to these attributes suggested that pedagogical intent, a specific theory-based rationale, implicitly guided our design decisions and was the primary generator for the design under study. We defined pedagogical intent as a careful and repeated consideration of the intended learning experience for a specific group of learners in a specific context. It guided our selection of content, interactions, activities, and tools and their alignment with the affordances of available technology throughout the course design. Recognizing that theory-based rationale, design core attributes, and pedagogical intent are project-specific, offers the possibility to match the pedagogy to specific content-area and contextual requirements, revealing a flexible design principle.

Upon reflection, we realized that the alignment process and the process of bringing to light the details of our practice were only possible because of the close collaboration and specific expertise of partners working on the project. While self-study was a productive inquiry method and provided valuable insights into our practice, it also fostered an environment of trust and collaborative knowledge exchange necessary for successful joint problem solving, cognitive synchronization, and innovation in interdisciplinary design teams.

Implications for oTPD Design and Collaborative Design Practice

Designing a successful oTPD is multifaceted and requires rationales grounded in our current understanding of how teachers learn and carefully considering which technology tools could effectively and efficiently support such learning (Fishman et al., 2014). This demands a close

collaboration of teacher educators, instructional designers, and online learning experts, valuing and engaging each other's perspectives and expertise. The findings of this study indicate that it is possible to align the choices of technology with the underlying pedagogical demands and suggest how this could be done. Conceptualizing pedagogical thinking as pedagogical intent allowed us to attend to the pedagogy more purposefully when we made decisions about how we wanted specific learning experiences and tasks to turn out in a technology-mediated environment. Attending to pedagogical intent, rather than just focusing on learning objectives and outcomes or types of technology to be used, provided means for developing a more pedagogically driven and learner-oriented design and enabled purposeful use of technology. The presented pedagogy-driven design process may be informative to those who design technology-mediated instruction or need to convert in-person learning into online settings in any context. We recognize that all design solutions and processes are contextually dependent. Therefore, we do not expect practitioners to adopt our suggested practice. Instead, we hope they would consider broader concepts and principles presented in this study and employ those within the circumstances of their practice.

One feature of designing TPD is that it must center around pedagogy and pedagogical thinking. Teachers are not an easy audience. They recognize good practice and expect effective pedagogies to be part of TPD. Furthermore, modeling effective pedagogies and having teachers experience them firsthand positively impacts the adoption of these practices. Teacher educators are experts in teaching and understand this. They know what effective teaching looks like and how it is encouraged and designed. Their perspectives are valuable when collaborating in design teams.

Additionally, self-study as a methodology offered a powerful means of collaborative inquiry into our situated practice. Design professionals who want to better understand and improve their practice and collaborate in design teams may want to consider self-study as a valuable means of professional inquiry. Through its unique characteristics, self-study complemented the design-based research environment and facilitated collaborative work. It allowed the co-investigating participants to engage as critical friends in a dialogue generating the data and in a dialogue about the data while carefully attending to the context of knowledge construction (Hamilton & Pinnegar, 2017). Positioning the researchers as the researched offered a unique opportunity to understand the data firsthand (Pinnegar & Hamilton, 2009) and provided valuable insights into the design process decision making. The collaborative nature and shared interdisciplinary expertise within the unique coming-to-know process of self-study enabled negotiating robust solutions within the design constraints. It provided the right environment to intensely scrutinize our practices and bring multiple perspectives and expertise to action in the environment of trust. Self-study mediated open communication with peers and provided reflective and intense dialoguing opportunities. It created space for exploring dilemmas and tensions in an atmosphere of mutual trust and respect, leading to constructive resolution of conflicts and successful joint problem solving. Self-study has been reported as transformative for interdisciplinary collaborators due to its power to explore alternative viewpoints, foster deep understanding, and make complex connections (Pinnegar & Hamilton, 2009; Samaras et al., 2019). This was also our experience. The open and mutually respectful environment fostered by self-study enabled our design team to fully capitalize on the individual and group expertise. It encouraged effective collaboration, cognitive synchronization, and expansive transformation, resulting in creative design solutions (Tessier, 2020, 2022) and professional growth (Voogt et al., 2016).

Implications for Research

This study also presents notable implications for research. The study was conducted within a larger project guided by design-based research principles (McKenney & Reeves, 2019). The DBR approach fit the study's goals and guided the selection of specific methods and techniques to answer our research questions. As we closely collaborated with colleagues from the teacher education field, they suggested taking advantage of the self-study methodology (Berry, 2015) from their discipline and assisted team members in implementing this approach in the context of instructional design. We found that the self-study methodology integrated well with the design-based research. It was found suitable, accurate, and productive for studying collaborative design practice involving complex and sophisticated processes with the potential to generate reusable design principles and fine-grained theories.

This study also revealed the importance of attending to both similarity and contiguity-based relationships when exploring patterns and relationships among categories, especially when studying processes (Maxwell & Miller, 2012). Exploring relationships among data within its actual context and attending to data's temporal and spatial proximity and sequences revealed overarching patterns in the design process that would not have been visible otherwise. If we ignored the temporal flow of the data and looked only for patterns based on similarity, we might have missed the broad pattern of repeated attention to pedagogical intent, the construct that connected the elements of individual categories.

Limitations and Future Directions

While the current study outlines the alignment of technology with pedagogy during designing oTPD for this specific context and participants, there are limitations. Besides the apparent time and resource constraints, one methodological limitation arises from the fact that this study was exploratory and descriptive, looking for patterns in practice of only one group of collaborators, at one specific time, working on one project. The context of each course design is highly specific, and each collaborative design group and project is unique. Therefore, findings from this study are transferable to other design contexts only in limited ways. Another methodological limitation is related to the choice of self-study as a tool for inquiry. Positioning investigators as both the researchers and the researched affords unique insights into the data (Berry, 2015) but may weaken objectivity. To reduce potential bias, we used exemplar validation, negative case analysis, reflexivity, and member checks. However, it is important to keep in mind that the findings are still subjective. We explored our practice, pushed our boundaries, examined our assumptions and theoretical perspectives, and attended to conflicts and tensions that were important to us as a group and relevant to the project. Another potential limitation arises from the study's focus on the process of aligning pedagogy and technology. We could have focused on many other aspects of designing oTPD and collaborative practice. Still, many insights about effective interdisciplinary collaboration emerged as part of our inquiry. Specifically, how different perspectives, tensions, and epistemic clashes could be formative and lead to innovative thinking, creative design, and expansive transformation. The last limitation that we would like to mention is the lack of previous research studies on the topic. We found only a handful of literature about the alignment process, and no studies discussed the topic in the context of designing oTPD. Additionally, although we found a number of studies exploring co-design and collaborative

design as a form of TPD, only a few studies examined the collaborative design process or decision making while designing oTPD. Fortunately, we found studies of collaborative design practice and processes from other disciplines with insights related to our work.

Future work may explore the alignment process when designing different courses and conducted by a different group of researchers/practitioners. The efficacy of pedagogical intent guiding the design process in varied contexts could also be investigated. Furthermore, self-study methodology and its impact on interdisciplinary collaborative work could be explored in the instructional design contexts. Self-study could also be applied as a methodology investigating collaborative design processes in other settings and contexts. It is a robust methodology that harmonizes well with the principles of collaborative design and design-based research and could be very useful in exploring different aspects of collaboration. Based on this study's findings, we recommend further exploring the role of multiple perspectives and conflict in advancing creative and innovative thinking and identifying which conditions and processes are conducive to or block the progress of collaborative efforts.

Conclusion

Self-study methodology proved to be a valuable approach for exploring collaborative design practice. Closely examining decisions made during the design process led us to reflectively evaluate assumptions and knowledge underlying those decisions. We recognized that the emerging design, structures, and processes manifested our collective knowledge, assumptions, and theoretical orientation. Our collaborative conversations pushed our individual understanding beyond what we would ordinarily see in isolation and enabled us to examine perspectives and theories outside our typical comfort range. The interdisciplinary expertise within the unique coming-to-know self-study process allowed us to negotiate robust solutions and gain a deeper understanding of the processes involved in aligning technology with pedagogy. Our collaborative design efforts provided a window to reflect on our practice and understanding as we shared knowledge, made our reasoning explicit, and negotiated solutions, capitalizing on each other's expertise in an atmosphere of mutual trust and respect.

This study's findings suggest that aligning technology with pedagogy is possible, feasible, and potentially beneficial for enhancing the quality and effectiveness of oTPD and possibly other designs. Indeed, it seems that attending to the underlying pedagogy and carefully employing content and context-dependent practices (core approaches and methods), not just using innovative technological tools, makes effective instruction and learning online possible. Various technology tools can be effectively employed to improve instruction across modalities when used for specific pedagogical purposes.

Declarations

Data are available upon request by contacting the author.

The authors declare they have no conflict of interest.

All procedures performed in this study involving human participants were in accordance with the ethical standards of the university where the study took place.

Informed consent was obtained from all individuals participating in this study.

References

Allman, B. & Pinnegar, S. E. (2020). A self-study of aligning pedagogy with technology in online course design. In C. Edge, A. Cameron-Standerford, & B. Bergh (Eds.), *Textiles and Tapestries: Self-Study for Envisioning New Ways of Knowing.* EdTech Books. https://edtechbooks.org/textiles_tapestries_self_study/chapter_2

Antonenko, P. D., Dawson, K., & Sahay, S. (2017). A framework for aligning needs, abilities and affordances to inform design and practice of educational technologies. *British Journal of Educational Technology, 48*(4), 916–927. https://doi.org/10.1111/bjet.12466

Augsten, A., & Gekeler, M. (2017). From a master of crafts to a facilitator of innovation: How the increasing importance of creative collaboration requires new ways of teaching design. *The Design Journal, 20*(1), 1058-1071. https://doi.org/10.1080/14606925.2017.1353049

Bennett, A., & Checkel, J. T. (Eds.). (2015). *Process tracing: From metaphor to analytic tool.* Cambridge University Press. https://doi.org/10.1017/CBO9781139858472

Berry A. (2015) Self-study of teacher education practices (S-STEP). In R. Gunstone (Ed.), *Encyclopedia of science education.* Springer. https://doi.org/10.1007/978-94-007-2150-0_249

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International encyclopedia of education* (Vol. 7, pp. 548–556). Elsevier. https://doi.org/10.1016/B978-0-08-044894-7.00654-0

Bower, M. (2008). Affordance analysis – matching learning tasks with learning technologies. *Educational Media International, 45*(1), 3–15. https://doi.org/10.1080/09523980701847115

Brown, A. L. (1992). Design experiments: Theoretical and methodological challenges in creating complex interventions in classroom settings. *Journal of the Learning*

*Sciences, 2(*2), 141–178. https://doi.org/10.1207/s15327809jls0202_2

Bullock, S. M., & Russell, T. (Eds.). (2012). *Self-studies of science teacher education practices* (Vol. 12). Springer. https://doi.org/10.1007/978-94-007-3904-8

Corbin, J., & Strauss, A. (2008). *Basics of qualitative research: Techniques and procedures for developing grounded theory* (3rd ed.). SAGE Publications. https://doi.org/10.4135/9781452230153

Cresswell, J. W. & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage publications.

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. https://learningpolicyinstitute.org/product/teacher-prof-dev

Dede, C., Jass Ketelhut, D., Whitehouse, P., Breit, L., & McCloskey, E. M. (2009). A research agenda for online teacher professional development. *Journal of Teacher Education, 60*(1), 8–19. https://doi.org/10.1177/0022487108327554

Desimone, L. M., & Garet, M. S. (2015). Best practices in teachers' professional development in the United States. *Psychology, Society and Education, 7*(3), 356–369. https://doi.org/10.25115/psye.v7i3.515

Engeström, Y., & Sannino, A. (2010). Studies of expansive learning: Foundations, findings, and future challenges. *Educational Research Review, 5*(1), 1-24. https://doi.org/10.1016/j.edurev.2009.12.002

Ertmer, P. A., & Newby, T. J. (2016). Learning theory and technology: A reciprocal relationship. In N. Rushby & D. W. Surry (Eds.), *The Wiley handbook of learning technology* (1st ed., pp. 58–76). John Wiley & Sons. https://doi.org/10.1002/9781118736494.ch4

Fischer, C., Fishman, B., Dede, C., Eisenkraft, A., Frumin, K., Foster, B., Lawrenz, F., Levy, A. J., & McCoy, A. (2018). Investigating relationships between school context, teacher professional development, teaching practices, and student achievement in response to a nationwide science reform. *Teaching and Teacher Education, 72*, 107–121. https://doi.org/10.1016/j.tate.2018.02.011

Fishman, B., Konstantopoulos, S., Kubitskey, B. W., Vath, R., Park, G., Johnson, H., & Edelson, D. (2014). The future of professional development will be designed, not discovered: Response to Moon, Passmore, Reiser, and Michaels, "Beyond comparisons of online versus face-to-face PD." *Journal of Teacher Education, 65*(3), 261–264. https://doi.org/10.1177/0022487113518440

Fishman, B., Konstantopoulos, S., Kubitskey, B. W., Vath, R., Park, G., Johnson, H., & Edelson, D. C. (2013). Comparing the impact of online and face-to-face professional development in the context of curriculum implementation. *Journal of Teacher Education, 64*(5), 426–438. https://doi.org/10.1177/0022487113494413

Gibbons, A. S. (2008). Model-centered instruction, the design, and the designer. In D. Ifenthaler, P. Pirnay-Dummer, & J. M. Spector (Eds.), *Understanding models for learning and instruction* (pp. 161-174). Springer. https://doi.org/10.1007/978-0-387-76898-4_8

Gibbons, A. S. (2014). *An architectural approach to instructional design*. Routledge. https://doi.org/10.4324/9780203075203

Graham, C. R., Henrie, C. R., & Gibbons, A. S. (2014). Developing models and theory for blended learning research. In A. G. Picciano, C. D. Dziuban, & C. R. Graham (Eds.), *Blended learning: Research perspectives, Volume 2*(pp. 13–33). Routledge. https://doi.org/10.4324/9781315880310

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching: Theory and Practice, 8*(3), 381–391. https://doi.org/10.1080/135406002100000512

Hamilton, M. L., & Pinnegar, S. (2017). Self-study of teaching and teacher education practices methodology and the digital turn. In D. Garbett & A. Ovens (Eds.), Being self-study researchers in a digital world. *Self-study of teaching and teacher education practices* (Vol. 16, pp. 11-29). Springer. https://doi.org/10.1007/978-3-319-39478-7_2

Hofmann, R. (2019). Dialogue, teachers and professional development. In N. Mercer, R. Wegerif, and L. Major (Eds.), *The Routledge international handbook of research on dialogic education* (pp. 213-216). https://doi.org/10.4324/9780429441677-18

Ke, L., Friedrichsen, P., Rawson, R., & Sadler, T. D. (2023). Teacher learning through collaborative curriculum design in the midst of a pandemic: A cultural historical activity theory investigation. *Teacher and Teacher Education, 122* (Feb), 103957. https://doi.org/10.1016/j.tate.2022.103957

Kelly, N., Wright, N., Dawes, L., Kerr, J., & Robertson, A. (2019). Co-design for curriculum planning: A model for professional development for high school teachers. *Australian Journal of Teacher Education, 44*(7), 84-107. https://doi.org/10.14221/ajte.2019v44n7.6

Ko, M-L. M., Hall, A., & Goldman, S. R. (2022). Making teacher and researcher learning visible: Collaborative design as a context for professional growth. *Cognition and Instruction, 40*(1), 27-54. https://doi.org/10.1080/07370008.2021.2010212

LaBoskey, V. K. (2004). The methodology of self-study and its theoretical underpinnings. *In International handbook of self-study of teaching and teacher education practices* (pp. 817-869). Springer, Dordrecht. https://doi.org/10.1007/978-1-4020-6545-3_21

Lay, C. D., Allman, B., Cutri, R. M., & Kimmons, R. (2020). Examining a decade of research in online teacher professional development. *Frontiers in Education*, *5*(September). https://doi.org/10.3389/feduc.2020.573129

Maxwell, J. A., & Miller, B. (2012). Real and virtual relationships in qualitative data analysis. In J. A. Maxwell (Ed.), *A realist approach for qualitative research* (pp. 109–125). SAGE

Publications.

McDonald, J. K., Yanchar, S. C., & Osguthorpe, R. T. (2005). Learning from programmed instruction: Examining implications for modern instructional technology. *Educational Technology Research and Development, 53*(2), 84–98. https://doi.org/10.1007/BF02504867

McKenney, S., & Reeves, T. C. (2019). *Conducting educational design research* (2nd Ed). Routledge. https://doi.org/10.4324/9781315105642

Mezirow, J. (1997). Transformative learning: Theory to practice. *New direction for adult and continuing education, 74*(Summer), 5-12. https://doi.org/10.1002/ace.7401

Moirano, R., Sanchez, M. A., & Stepanek, L. (2020). Creative interdisciplinary collaboration: A systematic literature review. *Thinking Skills and Creativity, 35*, 100626. https://doi.org/10.1016/j.tsc.2019.100626

Moon, J., Passmore, C., Reiser, B. J., & Michaels, S. (2014). Beyond comparisons of online versus face-to-face PD: Commentary in response to Fishman et al., "Comparing the impact of online and face-to-face professional development in the context of curriculum implementation." *Journal of Teacher Education, 65*(2), 172–176. https://doi.org/10.1177/0022487113511497

Opfer, V. D., & Pedder, D. (2011). Conceptualizing teacher professional learning. *Review of Educational Research, 81*(3), 376–407. https://doi.org/10.3102/0034654311413609

Osborne, R. (2014). *An ecological approach to educational technology: Affordance as a design tool for aligning pedagogy and technology* [Doctoral dissertation, University of Exeter]. https://ore.exeter.ac.uk/repository/handle/10871/16637

Parsons, S. A., Hutchison, A. C., Hall, L. A., Parsons, A. W., Ives, S. T., & Leggett, A. B. (2019). U.S. teachers' perceptions of online professional development. *Teaching and Teacher Education, 82,* 33–42. https://doi.org/10.1016/j.tate.2019.03.006

Penuel, W. R., Fishman, B. J., Yamaguchi, R., & Gallagher, L. P. (2007). What makes professional development effective? Strategies that foster curriculum implementation. *American Educational Research Journal, 44*(4), 921–958. https://doi.org/10.3102/0002831207308221

Penuel, W. R., Allen, A-R., Henson, K., Campanella, M., Patton, R., Rademaker, K., Reed, W., Watkins, D., Wingert, K., Reiser, B., & Zivil, A. (2022). Learning practical design knowledge through co-designing storyline science curriculum units. *Cognition and Instruction, 40*(1), 148-170. https://doi.org/10.1080/07370008.2021.2010207

Piirainen, K., Kolfschoten, G., & Lukosch, S. (2009). Unraveling challenges in collaborative design: A literature study. In L. Carriço, N. Baloian, B. Fonseca (Eds.), *Groupware: Design, Implementation, and Use. CRIWG 2009*. Lecture Notes in Computer Science, vol. 5784. Springer. https://doi.org/10.1007/978-3-642-04216-4_20

Pinnegar, S., & Hamilton, M. L. (2009). *Self-study of practice as a genre of qualitative research: Theory, methodology, and practice*. Springer. https://doi.org/10.1007/978-1-4020-9512-2

Powell, C. G., & Bodur, Y. (2019). Teachers' perceptions of an online professional development experience: Implications for a design and implementation framework. *Teaching and Teacher Education, 77*, 19–30. https://doi.org/10.1016/j.tate.2018.09.004

Samaras, A. P., Hjalmarson, M., Bland, L. C., Nelson, J. K., & Christopher, E. K. (2019). Self-study as a method for engaging STEM faculty in transformative change to improve teaching. *International Journal of Teaching and Learning in Higher Education, 31*(2), 195-213. https://www.isetl.org/ijtlhe/ijtlhe-article-view.php?mid=3286

Schwab, Joseph (1970). *The practical: A language for curriculum.* National Education Association.

Severance, S., & Krajcik, J. (2018). Examining primary teacher expertise and agency in the collaborative design of project-based learning innovations. *In International Society of the Learning Sciences 2018 Proceedings*. https://repository.isls.org/bitstream/1/590/1/263.pdf

Tessier, V. (2020). Insights on collaborative design research: A scoping review. *The Design Journal, 23*(5). 655-675. https://doi.org/10.1080/14606925.2020.1807716

Tessier, V. (2022). Expansive learning for collaborative design. *Design Studies, 83*, 101135. https://doi.org/10.1016/j.destud.2022.101135

Voogt, J., Laferriere, T., Breuleux, A., Itow, R. C., Hickey, D. T., & McKenney, S. (2015). Collaborative design as a form of professional development. *Instructional Science, 43*, 259-282. https://doi.org/10.1007/s11251-014-9340-7

Voogt, J. M., Pieters, J. M., & Handelzalts, A. (2016). Teacher collaboration in curriculum design teams: Effects, mechanisms, and conditions. *Educational Research and Evaluation, 22*(3–4), 121–140. https://doi.org/10.1080/13803611.2016.1247725

Wiggins, G., & McTighe, J. (2005). Understanding by design (Expanded 2nd). Merrill/Prentice Hall and ASCD.

Yanchar, S. C., & Gabbitas, B. W. (2011). Between eclecticism and orthodoxy in instructional design. *Educational Technology Research and Development, 59*(3), 383–398. https://doi.org/doi.org/10.1007/s11423-010-9180-3

West, R. E., Ertmer, P., & McKenney, S. (2020). The crucial role of theoretical scholarship for learning design and technology. *Educational Technology Research and Development, 68*(2), 593–600. https://doi.org/10.1007/s11423-020-09770-9