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# Space that was safe to explore and learn: Stretching the affordances for networked professional learning in creativity for educators

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What makes impactful online professional development for rural teachers learning creativity and arts integration? In this paper, we describe the results of a mixed method-study that tested a new hybrid online and in-person teacher training experience with K-12 teachers in the Northwestern region of the United States of America in 2019–2020. The study focused on the creative development of rural educators and their preparation to integrate creativity and the arts across the curriculum. Rural schools face challenges in providing ongoing professional learning opportunities to teachers, especially in complex areas, such as creativity and arts integration. However, professional learning opportunities in this area are either lacking or minimally available for many teachers due to a variety of barriers. The results reveal innovations about networked learning approaches to teaching complex topics and practices, such as creativity, which make online learning more experiential and connected for relevance and engagement. As others have found, networked learning can offer transformative experiences. In addition to detailed findings, this paper presents several expanded design principles and specific techniques to make online learning experiences creative and expansive.

*Implications for practice or policy:*
- Networked learning for educators should be interactive, self-reflective and creative using diverse media and modalities.
- Professional development developers should focus on instructional routines to help teachers build confidence in their skill building.
- Professional development developers should consider the creative engagement framework as a guide for the design of teacher training.
- Teacher outcomes in online professional development should be cohort-based to build peer-to-peer connection and encourage creative risk-taking and collaboration.

*Keywords*: networked learning, hybrid professional development, online training, creativity, creative engagement, psychological safety, mixed methods

## Introduction

According to observation research, creativity is lacking in most K-12 educational environments (Katz-Buonincontro & Anderson, 2018). Scholars have pointed out the barriers and challenges to creativity that exist within most educational environments where sameness is valued above difference (Glaveanu & Beghetto, 2017). Teachers hold strong, seemingly unshakeable beliefs about creativity in teaching and learning (Bereczki & Kárpáti, 2018), and until recently, it was not clear if those beliefs and values could be shifted through short-term professional learning experiences (R. C. Anderson, Katz-Buonincontro, Bousselot et al., 2022). Teachers often perceive creativity as unapproachable or as simply a distraction from their teaching goals and classroom order (Kaufman & Beghetto, 2013). Additionally, teachers may perceive it as more a domain for hands-on, project-based learning or art classes than traditional content areas, such

as English language arts or science (Burnaford et al., 2007). In addition to some of those less visible barriers, access to high-quality professional development (PD) focused on creativity in teaching and learning has been a perennial issue in education (R. C. Anderson, Porter et al., 2020). Iterative and collaborative research and development with new technology-enabled innovations are needed to address these barriers thoughtfully.

This study investigated an approach for addressing creative development of teachers by stretching the affordances of an innovative online professional learning programme called makeSPACE, implemented alongside in-person engagement. This kind of hybrid learning approach mixes in-person instruction with access to online learning resources – similar to what has been termed *blended learning* (Graham, 2009; H. Hall & Davison, 2007; Watson, 2008). New hybrid models should be able to leverage the affordances of online and in-person training to generate innovative experiences that not only develop more creativity in professional practice but are also personalised and equitably accessible for educators in under-resourced regions. This study set out to understand how the affordances of traditional online learning can be stretched in new creative ways to model creative learning for teachers in hybrid professional development and shift beliefs and practices in the classroom. We used a design-based research approach (T. Anderson & Shattuck, 2012) with a twofold aim: (a) to understand and describe the teacher experience in an online PD environment and (b) to document the innovations that result from an iterative and collaborative design process. If the online components of this hybrid approach can be optimised, then scalable effective opportunities for teacher PD in creativity may be feasible. Designed and developed alongside mostly rural teachers in a Northwestern region of the United States of America, the programme used a cohort-based, interactive and asynchronous 14-hour online course in creative teaching and learning followed by a 2-day in-person Summer Institute. Results from each phase informed new innovations described in detail.

## Literature review

The primary rationale for this study builds on three interrelated issues of accessibility: (a) the paucity of accessible training for teachers' understanding of and personal development in creativity, (b) a lack of models that target teacher's creative development through accessible online modalities and (c) a lack of teacher-informed research on the possible innovations for high-quality, scalable online professional learning.

### Making training in creativity accessible to rural schools through arts integration

Not surprisingly, the arts have provided an important access point to creativity in education (Hetland et al., 2013) and serve as one meaningful, research-based path to addressing the documented lack of observable creative learning opportunities in most K-12 educational environments (Katz-Buonincontro & Anderson, 2018). Basic processes in different arts domains, such as theater, can be integrated in different content areas efficiently to produce meaningful effects on student development and academic achievement (Lee et al., 2015). Across recent decades, integration of the arts into other content areas to connect learning processes and objectives across domains has grown in popularity as a way to enhance teacher creativity and student learning in the classroom (Burnaford et al., 2007).

Unfortunately, geographically rural and remote schools have struggled to offer PD on creative teaching and learning strategies, such as arts integration, due to a variety of barriers (e.g., poverty, geographic distance; Donovan & Brown, 2017). One solution to the issue of accessibility is to develop high quality online training experiences as the primary modality for teacher PD to reduce travel and cost barriers for rural teachers. Research needs to address the affordances, constraints, and opportunities in online training approaches that can offer personalised, interactive, creatively demanding and self-paced professional learning, complementary in-person experiences and a hybrid blend of the two.

### Accessibility (and liberation) through networked professional learning

Generally, teacher PD shows little effectiveness at changing teacher beliefs, behavior or promoting skill development (G. Hall & Hord, 2014). When teachers do experience change, it can require a sustained focus to shift beliefs and develop skills. In a meta-analysis of the effects of adult learning methods, generally, the practices with greatest effect sizes included reflection, self-assessment, real-life application and role-playing (Dunst et al., 2015). Salas et al. (2012) reviewed effective teacher training practices and made

several recommendations: (a) during training, the process should scaffold the challenge level to enable a positive growth-oriented mindset, build self-efficacy and boost motivation; (b) instructional strategies should provide opportunities to practise, experience mistakes, promote self-directed learning and learn through simulation; and (c) technology-enabled training should be designed with extensive user feedback.

Innovations in the realm of online and hybrid approaches have been emerging in recent years that challenge the "sit-and-get" style of traditional PD. The emphasis on online versus in-person learning provides some differentiation on the approach. Some researchers insist on a 50/50 ratio of traditional and in-person training to be considered hybrid as opposed to a blended learning approach where the ratio may emphasise in-person PD above online learning (e.g., 75/25 ratio; The Pennsylvania State University, 2021). Terminology in this area has become muddied by the COVID-19 pandemic, where many schools were forced to offer hybrid options, which meant teachers presented their course material bi-modally for students who were either physically on campus or remote (Microsoft Educator Center, 2021). A more recent definition to hybrid learning suggests the structure and delivery can range on a continuum from 100% in-person to 100% online, suggesting a diverse typology (Carper & Friedel, 2021).

The differentiation of hybrid versus blended approaches to professional learning can also be considered under a larger umbrella concept of networked learning (NL). In the early days of the NL community, NL embraced the emancipatory agenda of other critical pedagogies (Beaty et al., 2002), which has since been updated to reflect the current realities of technology in our world. NL scholars have defined it as:

> Networked learning involves processes of collaborative, co-operative and collective inquiry, knowledge-creation and knowledgeable action, underpinned by trusting relationships, motivated by a sense of shared challenge and enabled by convivial technologies. (Networked Learning Editorial Collective [NLEC], 2021)

This definition underscores the purpose that should drive new technologies and innovations rather than focusing on technicalities. The NLEC (2021) recently promoted a new set of design dimensions for NL experiences that include important considerations within the creative development of educators, specifically (a) linearity in the flow of the experience; (b) a balance between content and process goals; (c) playfulness; (d) collaboration; (e) the affective side of learning; and (f) social and cultural justice and inclusion. These design dimensions integrate well with the best practices suggested by Dunst et al. (2015) and Salas et al. (2012) with an added emphasis on the goal of liberation and connection through NL experiences. Because the training experience in our study focused on connecting teachers across different schools and regions, we adhere to the term of NL experience throughout this article. In the design of the online component, programme designers integrated those guidelines within the affordances of the customisable platform and the creative engagement framework articulated below (see Table 1).

Table 1
*Best practices in adult learning methods and design dimensions for NL experiences integrated into the affordances for online training about creativity in teaching*

| Guidance | Affordances & constraints | Example from the course |
|---|---|---|
| (1) Reflection & affective aspect of learning | Ask teachers for regular reflection on how they feel and think throughout training using different creative modalities. Cohort-based online training provides authentic sharing more than fully individualised models. | Before starting the online Foundation Course for Creative Engagement, teachers received a customised journal and other "analogue" tools to use throughout their online experience. The course asked them to reflect often so this physical journal tracked their experience and ideas. |
| (2) Self-assessment & collaboration | Teachers can upload creative work to share with their peers and exchange feedback through discussion forums. Cohort-based model is necessary for peer feedback. Teachers can also state and revisit their core teaching values. | Teachers were instructed to use mixed media collage or drawing to represent their unique set of creative resources in a Creative Avatar. They incorporated their understanding about metaphor by symbolising their resources thoughtfully. They took a picture and shared their work through a forum post. |

| | | | |
|---|---|---|---|
| (3) | Real-life application and content versus process | By providing teachers easy-to-use creative routines for immediate use, online training experiences can introduce techniques, offer practice and then ask teachers to test ideas for real-world implementation | Teachers uploaded short videos doing a creative and <u>Metaphoric Gesture</u> to convey their understanding about the conditions for creative engagement. This solidified their understanding and deepened understanding for why to use gesture in learning. |
| (4) | Role-playing & playfulness | Role playing may be best done through in-person training. One way to engage role-playing online is to provide teachers easy practices to experiment with and then reflect on. | Teachers engaged the creative thinking task called Alternate Uses Task or <u>Many Uses Game</u>. They engaged in the process, tried it with their classes if they felt ready and shared their reflections on the experience in a forum. |
| (5) | Scaffolded challenge, linearity & openness | Sharing creative ideas and work is vulnerable and risky– online and in-person training should increase this risk-level slowly and use peer-to-peer connection to build a shared sense of belonging and trust. | Allow some early ideation opportunities to be anonymous. Ask teachers to provide encouraging feedback to each other in forums using the <u>I see I appreciate I wonder</u> protocol. |
| (6) | Simulation & practice | Online training provides opportunities for simulation but may be limited for the development of self-efficacy in actual real-life simulation of teaching practice. Online affordances can engage new exercises and offer step-by-step protocol to experiment in the classroom. | A random word-pairing generator was programmed into the course, which simulated a combinatory play experience called <u>Daft Dictionary</u>, where teachers ideated and shared creative definitions for the word combo. Programmers embedded the Padlet app into the online learning platform. |
| (7) | Socially just & culturally inclusive | Online training formats can incorporate and represent the voices, faces, experiences and creative work from diverse cultures and individuals. | Global visuals from different cultures enriched pre-recorded PowerPoint presentations. Teachers were asked to connect their social justice values and equity for teaching to the approaches they were planning to integrate creativity into the classroom. |

## Modeling creative learning for teachers through the creative engagement framework (CEF)

We applied the CEF to organise the teacher PD experience, which builds on extensive research from multiple disciplines across the past decade (R. C. Anderson, 2018; R. C. Anderson, Haney, et al., 2020; R. C. Anderson, Katz-Buonincontro, Bousselot et al., 2022; R. C. Anderson, Katz-Buonincontro, Livie et al., 2022). Creative engagement is defined as the social, affective, and cognitive process built on a sense of autonomy, belonging, competency and sense of creative potential to make and share meaning through creative thinking and action in a learning context (see Figure 1; R. C. Anderson, 2018, p. 7). The model articulates the conditions necessary for creative engagement at any level of education to achieve the affective and cognitive focus unique to the creative process (Hennessey & Amabile, 2010). Creative engagement emphasises the learners' fundamental need to make meaning with their whole body-mind, alongside the fundamental needs for autonomy, relatedness and belonging and competency for engagement in learning (Ryan & Deci, 2000). The four CEF principles are creative potential as a learners' diversity of creative resources to find novel, meaningful and effective ideas and enhance their learning; autonomy as a learners' inherent drive for independence and freedom in their learning; belonging as a learner's need for relatedness and belonging with peers and adults; and competency as a learners' necessity to feel capable to face challenges and be resilient toward success. Creative engagement was modeled in the training through simple, low-stakes classroom routines for creativity in learning.
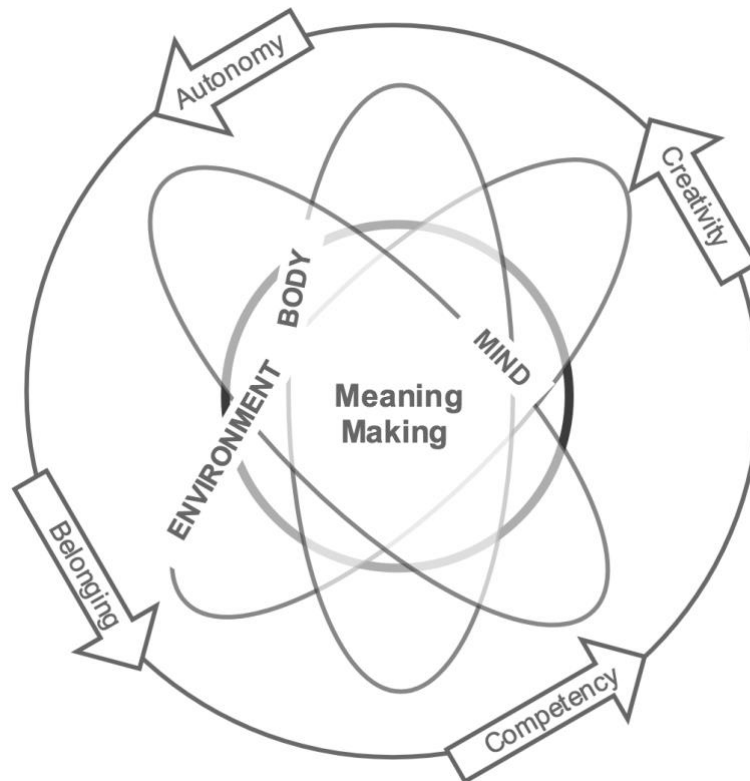
*Figure 1*. The CEF for embodied meaning-making that links theories of creativity, engagement in learning, affective neuroscience and embodied philosophy of mind (adopted from R. C. Anderson, 2018, p. 7).

In our study, we sought to understand how the CEF can work as a pedagogical guide for the design of online and in-person components of professional learning for teachers to model the condition-setting practices for creative engagement in their own classrooms. Key to this integration, the CEF uses brief creative routines that can be adapted for different developmental levels, integrated into existing classroom practice, and draw out creative thinking and mindsets. From this perspective, consistent practice of creative routines can produce meaningful creative development through intentional everyday creativity (Richards, 2018). Creative engagement incorporates the role of "mini-c" creativity, or personal insights (Kaufman & Beghetto, 2009), where creative learning for an individual begins before that creative idea is shared and evaluated by anyone else (Beghetto, 2016). According to the complementary theory of creative behavior as agentic action (Karwowski & Beghetto, 2018), to take the initial steps toward creative engagement in everyday teaching and learning requires the growth mindset and self-beliefs about one's creative potential and the value that creative risk is worth the effort.

The CEF also builds on the role of reflection (Dewey, 1933) and metacognition in online learning. Decades of research on metacognition – or thinking about thinking (Beach et al., 2020) – suggest that reflecting on the experience of learning may be more critical than the learning itself. As such, the affordances of self-paced online learning provide a variety of ways for reflection using different modalities, for example, 2D and 3D creations and gestural metaphor to represent thoughts and feelings creatively. While creative engagement was the cornerstone for the training, reflection was the cement, setting creative development firmly in place for teachers.

## Study context and aims

This study was part of a federally funded U.S. Department of Education grant, the makeSPACE project, to assist in the development and dissemination of arts integration best practices targeting the needs of rural and remote educators in the Northwestern United States region. The design of the NL training experience included the collaboration of expert online instructional designers, videographers, teacher PD designers and creativity scholars, artists and classroom teachers providing input and feedback. We addressed the following three research questions:

(1) How did rural teachers describe their expectations and actual experience regarding the usability and effectiveness for the networked training in creativity before and after the training? (qualitative focus groups)
(2) How did rural teachers rate their online (14-hour) and in-person (2-day) experience, during and after the training? (quantitative survey)
(3) How can the results regarding both the online and in-person dimensions enhance the application of the creative engagement framework for online teacher training in creativity and further innovate new networked learning experiences, generally? (method integration and expansion)

## Method

All participants consented to their participation following approved institutional review board procedures. A convergent mixed-method research design was selected to account for the complementary aspects of qualitative and quantitative data in understanding the teacher learning experience (Creswell & Plano-Clark, 2018). This approach fits well into design-based research methodology (T. Anderson & Shattuck, 2012), where end-user input is rigorously studied and genuinely incorporated into the next iterations of online training. Qualitative focus groups were conducted prior to the training and then 3 months after engagement in the training. Quantitative teacher ratings were collected two times: during online course participation, as well as immediately after completion of the in-person training experience. The Results section is organised by research question. Data were analysed separately and merged in the discussion.

### Sample

The sample of participating teachers voluntarily enrolled in the networked professional learning programme based on the collaboration between their district and other organisations partnering in the federal grant. Participating teachers were from four Pacific Northwest schools in rural regions that ranged in their size and extent of rurality according to categorisation of the National Center for Education Statistics (n.d.a). In total, there were $N = 30$ teachers who completed the online Foundation Course for Creative Engagement and face-to-face makeSPACE Summer Institute. Two teachers were not available for the focus groups, resulting in a sample of $n = 28$ teachers for the qualitative phase. Though data on demographic characteristics and professional experience was not gathered systematically from teachers, generally, they were diverse in years teaching, subject area, K-12 grade level and gender. Some teachers were new within the first 5 years of teaching and some had taught for over 25 years. More than two-thirds of the teachers were female and the majority of teachers were White. Table 2 provides additional details about the teacher sample.

Table 2
*Description of participating schools and teachers*

| School | Grades | Rurality | 5–17-year-olds living in poverty[a] | Focus group participants | Participating teacher gender |
|---|---|---|---|---|---|
| School A | 9–12 | Town: Fringe | 30.7% | 10 | Female: 6; Male: 4 |
| School B | 6–8 | Town: Fringe | 30.7% | 8 | Female: 6; Male: 2 |
| School C | K-8 | Rural: Remote | 23.9% | 6 | Female: 5; Male: 1 |
| School D | K-12 | Rural: Distant | 28.0% | 4 | Female: 4; Male: 0 |

*Note*. The categories and codes for rurality and remoteness are derived from the National Center for Education (n.d.b).
[a]The percentage of children aged 5–17 living in poverty within each Local Education Agency service area is derived from the United States Census Bureau (2018).

### Study procedures

We worked with an expert instructional designer, who envisioned and designed ObaWorld to be a global customisable learning management system with every affordance imaginable (and yet to be imagined) available to programme developers. Additionally, the team consisted of expert content developers to produce animations, high-quality and interactive slideshows, and other interactives and graphical organisers and documents. The team of authors consists of PD designers, educators, and scholars in creativity, educational psychology and arts integration. Teacher participants rounded out this collaboration through cycles of iterative feedback provided from the vantage point of early users and adopters.

*Online training component*

We intentionally limited the makeSPACE online Foundation Course for Creative Engagement (https://www.makespaceproject.org/) to asynchronous content delivery and participant contributions. The cohort-based model meant teachers progressed through the material independently but interacted with each other asynchronously by sharing ideas, work and feedback through discussion forums. We designed the training course specifically to support educators to develop a research-based understanding of creativity in learning and the use of basic instructional routines in theater, visual arts and music and media applicable to primary, secondary or tertiary teaching contexts. Participants engaged with a 6-module journey through practices designed to explore creativity and arts integration in teaching and learning (see Figure 2 for a sample screenshot of the course). The journey began with an exploration of creativity – what is creativity, why is creativity important for students and what conditions support creative engagement in learning. Participants practised and generated routines to stimulate creative engagement in learning, such as through structured uncertainty, metaphorical thinking and reflection using a variety of modalities.

The affordances of the online learning asked teachers to respond using a variety of media, including videos of gestures, photos of drawings and collages from their journals or observations from the field, written ideation and recordings of sounds. In some cases, the training allowed teachers to choose their media. The course used multimedia formats to be interactive, experiential, playful, collaborative and applicable to the practical realities of educators. Participants shared creative work digitally, such as a collage of their creative resources and identity as a teacher. The participant experience was designed to develop deeper understanding and model practices for creative engagement in the classroom. The course was expected to take up to 14 hours to complete.

*In-person training component*

We hosted a 2-day, in-person institute in the summer of 2019, which included educators who had either completed the course or were at least in the process of completing it. The intent of the makeSPACE Summer Institute was to bring together course participants to experience arts integrated learning firsthand, share their experiences with the course and to give them time to meet with project arts integration specialists who designed the course to further explore the use of the strategies and routines they encountered in the course. Additional presenters included teachers who had previously participated in other arts integration training activities and were continuing to implement strategies in their classrooms, as well as artists who use the creative strategies in their own work. Figure 3 illustrates a teacher at work during the Summer Institute using found materials to construct a 3D model describing her creative resources as a teacher.

## Protocol and instruments

*Focus group protocol*

We conducted focus groups with teachers and administrators interested in participating in the arts integration course both prior to and following the completion of their participation in the Foundation Course and Summer Institute. Semi-structured protocols were used to guide the focus groups, which were conducted on site and each lasted between 60 and 90 minutes. Our protocol was organised around five key themes on the pre-course protocol and six key themes on the post-group protocol – we added follow-up questions as needed. From the pre-course focus group protocol, we focused on two areas for this study: sense of personal background, experience and development in the arts and/or creativity and perspectives on professional development online and through coaching. Of the themes included in the follow-up focus groups, this study primarily focused on development in the arts and/or creativity after completing the Foundations course and perspectives on usability and feasibility of the Foundation Course for Creative Engagement and makeSPACE Summer Institute.
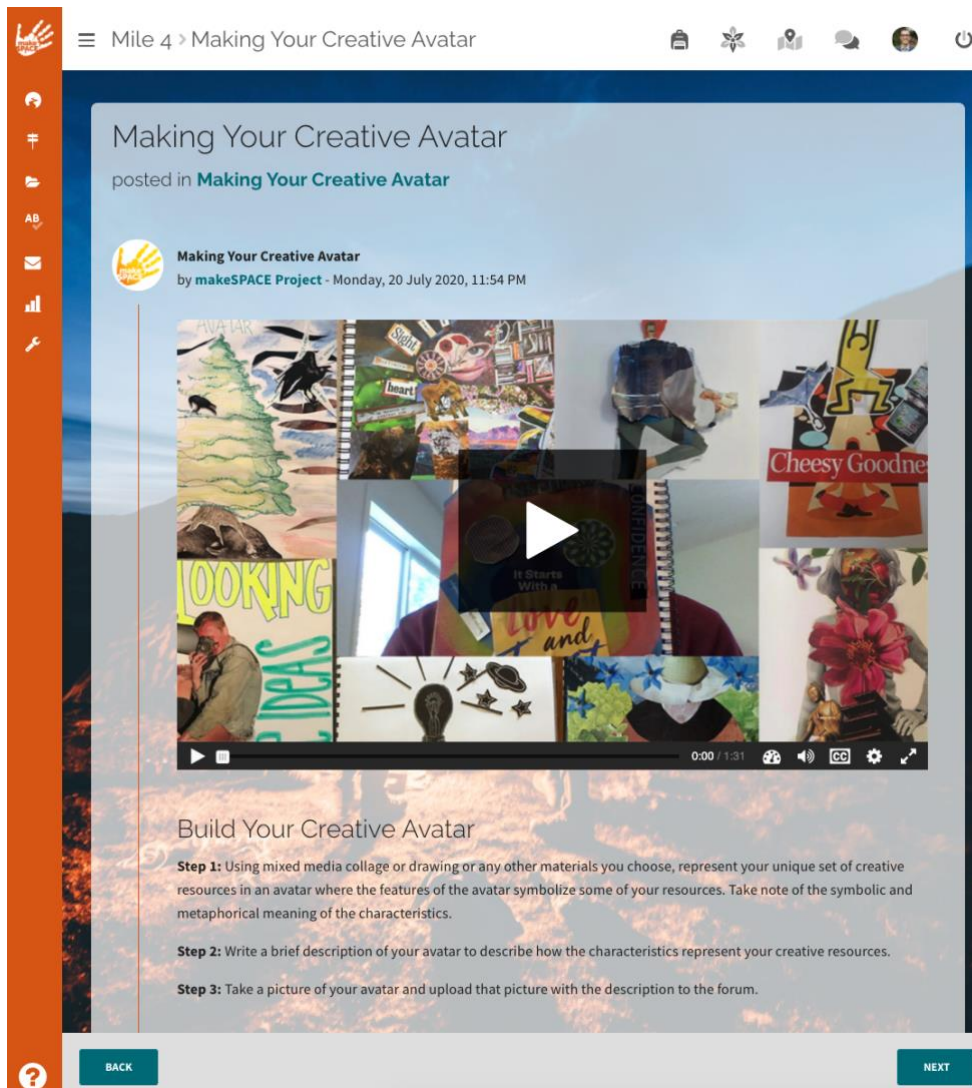
*Figure 2*. Sample creative and artistic exercise in the online PD course in creativity and arts integration showing the activity prompt and sharing function



*Figure 3*. Teacher at work during the Summer Institute building a 3D model of their creative resources

*Analytic plan*

We collectively developed an a priori qualitative coding scheme using research questions and focus group protocol questions to guide the coding (Berg, 2004). The coding scheme was used to code each transcript from site visits, with child in vivo codes added to the parent coding scheme when a new code was needed to interpret interview data. Focus groups were audio-recorded and transcribed. In keeping with traditional focus group analysis (Merriam, 2009), focus group transcripts were anonymised, cleaned and uploaded to NVivo for data analysis. Two researchers coded all transcripts, with one researcher coding every transcript from the pre-course groups and the other coding the post-course focus groups. The researchers debriefed to discuss the codes to ensure they were applied in a consistent, or reliable manner (Berg, 2004). As noted previously, a priori codes linking the study research questions and the focus group protocol provided a high-level framework for organising the initial data set into topical categories.

After initial coding, researchers returned to the coded data and added child codes to link perspectives across time and across online and in-person modalities (e.g., positive and negative impressions of online learning before completing the Foundation Course and positive and negative impressions after completing the Foundation Course). Researchers then identified areas of convergence and divergence. As a final step (Creswell & Plano Clark, 2018), we merged the results of the quantitative and qualitative data sets. We sought a coherent integration of teachers' experience and perspectives from both the online and in-person components to identify innovations and revisions that would enhance the online experience. We linked qualitative themes with quantitative findings (Wittink et al., 2006) to obtain a more complete picture of training and provide voice to those being studied.

*Survey instruments*

At the end of each course module, participants were asked 4 Likert-scale items: (a) "How interesting did you find the content in this module?" (c) "How relevant to your teaching practice is the content in this module?" (c) "How engaging did you find the delivery of content in this module?" and (d) "Would you recommend this learning process to someone else?" Response choices ranged from 1 (*strongly disagree*) to 6 (*strongly agree*). Educators attending the 2019 Summer Institute on August 20–21 were invited to participate in a post-training evaluation survey. Thirty individuals representing all participating schools completed the survey, which asked respondents to rate the extent to which the institute met its objectives and to respond to 6 open-ended items. Using a scale of 1–5 (1 = *missed it* to 5 = *nailed it*) on six Likert-scale items, respondents were asked to rate how well the Summer Institute met its objectives. The six open-ended reflective and evaluative prompts were (a) "What were the most effective parts of the Summer Institute for you?" (b) "What could we do a better job on next time?" (c) "What is one thing that you engaged in that you plan to bring back to your classroom?" (d) "In what ways did you stretch and grow?" (e) "Regarding programme implementation, what support do you need from the programme team?" (f) "What about from your principal?" (g) "Please share any other constructive feedback, ideas, and/or BIG dreams."

# Results

In the sections below, the results of qualitative and quantitative data analyses provide insights into the teachers' experience in online and in-person training. Teachers reported satisfaction and relevance with the topics covered, the importance and utility of the strategies and the mixture of online and in-person delivery for NL. Teachers felt dissatisfied with the amount of content to be covered and time demands, an insufficient number of examples and missing supports to bring the strategies back to the classroom and implement successfully. Those results and that feedback resulted in design and development of a new version of the online learning experience detailed in the results, which aligned better to creative engagement and incorporated new possibilities for NL experiences.

## Qualitative results from teacher focus groups and open-ended survey

Of the many ways to organise focus group results, we chose to present each of the focus groups in chronological order: before and after online professional development and after the in-person Summer Institute. In keeping with traditional qualitative analysis of focus group data, we present the results using a descriptive summary with illustrative quotes (Krueger, 1998). The ultimate goal was to apply the results from both online and in-person training experiences to stretch the affordances and possibilities within online training for creativity in the classroom.

*Before online PD focus groups*

Focus group interviews took place with 5–7 teacher participants at a time after school in their school buildings prior to beginning the arts integration training. Results indicated most participants had engaged with online learning and professional development at some point. Though some had never taken an online course, others had completed an entire graduate school programme online. All participants noted that online PD allowed the learner a flexible schedule in a mostly self-paced environment with clear expectations and feedback. For instance, one participant shared "I like it because I get to learn anytime that I have free time or I'm not stressed out." Online PD also provided the ability to go back and learn and/or re-read course materials as needed, and often resulted in usable final products, examples or knowledge transferrable to classroom use.

Participants noted significant challenges to online learning, as well: difficulties in meaningful communication and collaboration with other participants due to the lack of a in-person component (e.g., technology issues or lack of facial expression), an increased ability to procrastinate without the accountability of in-person class sessions and difficulties in carving out a time and space to be able to do required work without interruption. Several participants suggested that interacting with instructors and peers via discussion boards was beneficial, and others noted dissatisfaction and discomfort engaging with these types of activities, where meaning and nuance can get lost in online discussions or it becomes hard to track themes and ideas in unfacilitated exchange of comments.

Several focus group participants preferred doing PD online with a group of other teachers simultaneously. One participant noted, "That way you can bounce ideas back and forth and then there's that accountability for us." Most agreed about the preference to spend no more than 45 minutes to an hour in a single working session. Participants preferred PD that provides time to become familiar with new ideas through scaffolded practice before expecting classroom implementation. They disliked being told "what to do" rather than learning how new ideas resonate with their current thinking and instruction. The results from that stage of analyses were incorporated into the design of the hybrid PD experience.

*After online training focus groups*

During follow-up focus groups, teacher participants recommended ways to improve the online PD experience for future users, which organised into four categories: course content and organisation, technology, collaboration and exploration of resources. Participants requested more examples of creative strategies and routines, targeting more challenging content areas for integration, such as mathematics, the elementary grades and culturally inclusive practices. Some teachers noted that the amount of material covered seemed to be overwhelming at times and suggested breaking up big sections of the course into smaller pieces. Regarding course organisation, several teachers suggested a course map to better understand the course flow and connections between distinct modules. Participants also requested more realistic time estimates, indicating some sections took more time than anticipated, which made planning hard. Although some teachers struggled with navigation, most did not report issues with platform functionality. Additional suggestions to make the course more user-friendly included the use of specific prompts to have paper-and-pencil journals on hand and to use time viewing videos to multi-task with a drawing or reflection activity.

Teacher participants wanted more opportunities for collaboration and interaction with peers. They also expressed a desire to have access to additional resources about the broader topics discussed within the online course – an accessible resource library. Several teachers wished they had an easily accessible copy of all the course activities and strategies, either as a hard copy or in electronic format. One teacher specified they wanted a small set of "classroom cards" of the strategies they could easily select from during instructional time. Table 3 provides more specific recommendations by category.

*After in-person training focus groups and open-ended survey*

The post-programme focus groups yielded important insights about educators' experience in the in-person portion of the hybrid format to NL. One of the most noteworthy aspects of the in-person portion of the training was the experience of vulnerability in creative risk-taking in-person with peers as a complement to the online experience. As one educator explained, "I've performed in plays before, and that was fine, but standing up in front of people my own age … [was] a bit nerve-wracking" and another who noted, "The theatre pieces stretched me—even as a theater person." One participant explained, "I think it's always good to switch those roles, to remind you that learning is vulnerable," especially to "understand how the students might react to some of these things." One teacher defined his new attitude as creative empathy: "If I'm

having this anxiety as an adult about just making some 3D object to represent something, what does that say about what their anxiety is or how much we're asking them to be vulnerable and put themselves out there? It's almost more of a creative empathy." The in-person experiential component appeared to solidify new ideas and beliefs through the emotional, behavioral, and cognitive components of the training. More of this interaction between the two formats is described below.

Open-ended items from the in-person Summer Institute post-survey showed the most effective parts were exploring new strategies (71% or 20 participants), collaboration (43% or 12 participants), safety to explore new skills (21% or 6 participants), planning time for how to implement strategies (18% or 5 participants) or reflecting on the strategies and how they could be used (14% or 4 participants). Related to improvements for the online course, respondents appreciated practicing different art techniques, the scaffolded approach to building complexity and challenge, and seeing the routines modeled. All survey respondents planned to bring back a routine or strategy they had experienced to their classrooms.

## Quantitative results from survey ratings

*Online course modules*
At the end of each course module, participants were asked to rate their level of satisfaction in four areas (see Table 4). Across modules, course participants generally rated the satisfaction items highly, with no single item rated below a mean of 4.12 (Module 1, Relevance to Practice). In general, Module 1, which focused on introducing participants to the online platform and described what they would need, received the lowest ratings. Module 3, which provided the hands-on experience with and access to classroom-based creative routines, received the highest participant satisfaction ratings for each of the module aspects of interests. Except for Module 1, all modules achieved a mean rating of agreement (rounded up to 5 out of 6) for the four areas: interest, satisfaction, relevance and engagement.

Table 3
*Teacher recommendations for revising the online Foundation Course for Creative Engagement*

| Course content and organisation | Technology | Collaboration | Exploration of resources |
|---|---|---|---|
| Increase examples specific to mathematics & elementary school | Increase navigation flexibility within & between modules (e.g., rewind, pause) & make multimedia sources available for teachers' own classroom use | Provide a better introduction to facilitators and designers | Provide a print or electronic copy of ALL of the strategies, routines, activities found in the Foundations course (e.g., course manual, classroom strategy cards) |
| More short routines that take little planning | | More time for brainstorming ideas with other teachers in their content areas | |
| Provide more examples of exemplary responses | | | |
| Provide more scope & sequence info about training | | Increase peer-to-peer interactions and feedback | Increase specific resources or extended learning opportunities about creativity for more understanding of the research base |
| Include more examples of culturally centred practices that help diverse populations of students express themselves (e.g., culturally inclusive practices) | Provide note-taking or stopping point prompts that will help organisation in physical reflection journal | Check-ins with facilitators to share anxieties, triumphs, etc. | |
| | | More structure & accountability to keep from procrastinating | More resources around how creativity and social-emotional learning are connected |
| Reduce number of drawing activities – some adult learners struggle | | More in-person workshop time that focuses on specific activities/tools | |

*In-person training component*
Teachers' evaluation of the in-person Summer Institute was generally positive (see Table 5). Objective 2, Gain Exposure and Experience in Three Core Arts Integration Strategies (M = 4.74) and Objective 7, Create Time and Space for Creative Play (M= 4.71) were rated the highest. Objective 4, Plan for Arts Integration Development During the 2019–20 School Year and Beyond, was rated the lowest (M = 3.61).

Table 4
*End of module ratings for online Foundation Course for Creative Engagement* (completers only, *N* = 30)

| Survey item | Module 1 Mean (SD) | Module 2 Mean (SD) | Module 3 Mean (SD) | Module 4 Mean (SD) | Module 5 Mean (SD) | Module 6 Mean (SD) |
|---|---|---|---|---|---|---|
| How interesting did you find the content in this module? | 4.24 (1.07) | 4.82 (0.94) | 5.06 (0.69) | 4.68 (0.91) | 4.91 (0.90) | 4.68 (0.84) |
| How relevant to your teaching practice is the content in this module? | 4.12 (1.07) | 4.79 (0.88) | 5.35 (0.69) | 4.59 (0.82) | 5.06 (0.71) | 4.91 (0.90) |
| How engaging did you find the delivery of content in this module? | 4.41 (1.18) | 4.62 (1.02) | 4.91 (0.90) | 4.35 (0.95) | 4.71 (0.94) | 4.68 (1.12) |
| Would you recommend this learning process to someone else? | 4.26 (1.26) | 4.91 (0.90) | 5.06 (0.85) | 4.47 (1.16) | 4.91 (0.93) | 4.76 (1.18) |

*Note.* Response options ranged from 1 = *strongly disagree* to 6 = *strong agree*. *SD* represents standard deviation.

## Integrating mixed-method results to expand possibilities for online learning

We leveraged findings from the online Foundation Course and in-person Summer Institute to redesign the online Foundation Course to be optimally creative, engaging and meaningful to teacher development and practice. An integration of findings revealed that teachers benefited most from the experiential aspects of both online and in-person training components. Teachers wanted more lesson and curricular examples, more interaction with each other, more personalised pathways and more application of new concepts and information. They benefited from the more emotionally demanding and risky creative experiences, more feasibly leveraged through in-person training. We incorporated teacher input and stretched the affordances of the online learning space in alignment with NL dimensions and adult learning principles. Table 6 provides a list of innovations that emerged, and Figures 4–8 illustrate these innovations, visually.

Table 5
*Ratings of the extent to which the Summer Institute met its objectives (N=31)*

| Institute objective | Mean (SD) | Range |
|---|---|---|
| (1) Explore and practise arts-integrated creative processes | 4.63 (0.48) | 4–5 |
| (2) Gain exposure and experience in arts integration strategies | 4.74 (0.45) | 4–5 |
| (3) Explore new arts integration design possibilities | 4.10 (0.83) | 2–5 |
| (4) Plan for arts integration development in upcoming school year | 3.61 (0.95) | 2–5 |
| (5) Cultivate community of practice and belonging | 4.61 (0.50) | 4–5 |
| (6) Cultivate confidence for creative classroom integration | 4.40 (0.56) | 3–5 |
| (7) Create time and space for creative play | 4.71 (0.53) | 3–5 |
| Overall | 4.40 (0.41) | 2–5 |

*Note.* Ratings of objectives were on a scale from 1–5 (1 = *missed it*, 5 = *nailed it*). *SD* represents standard deviation.
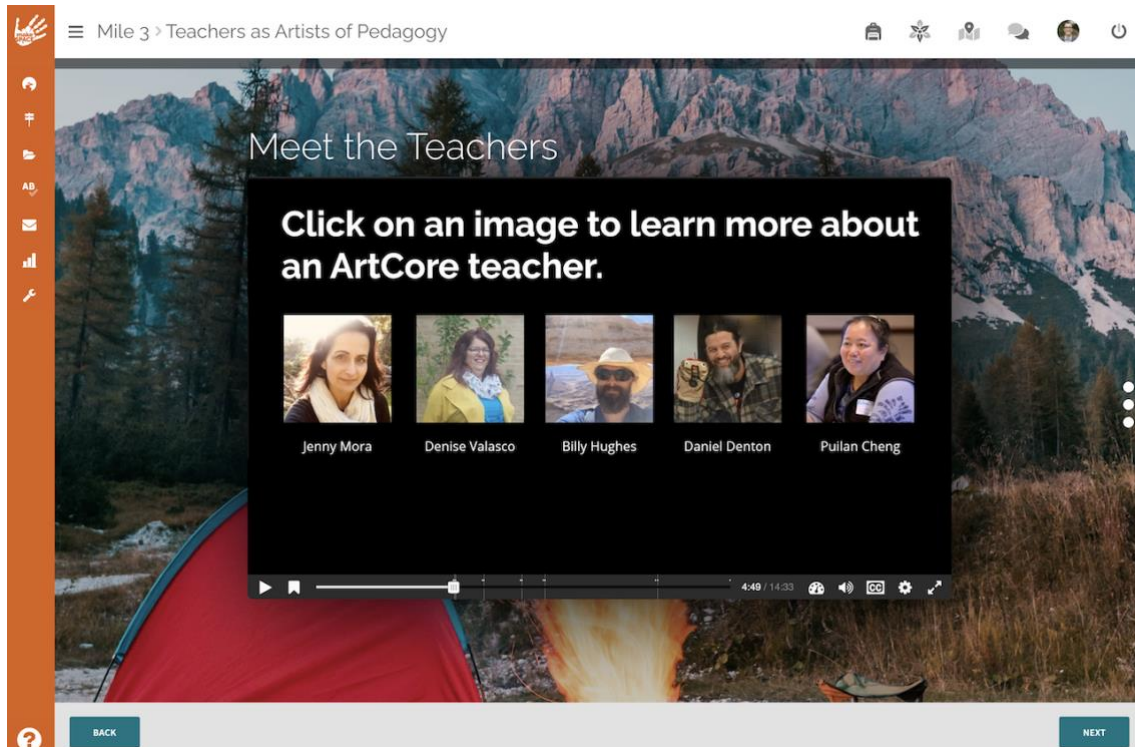
*Figure 4*. Teacher profiles that teacher participants can choose to navigate, listen to and learn from. Note the continued use of the river journey metaphor through the campfire scene in the background.
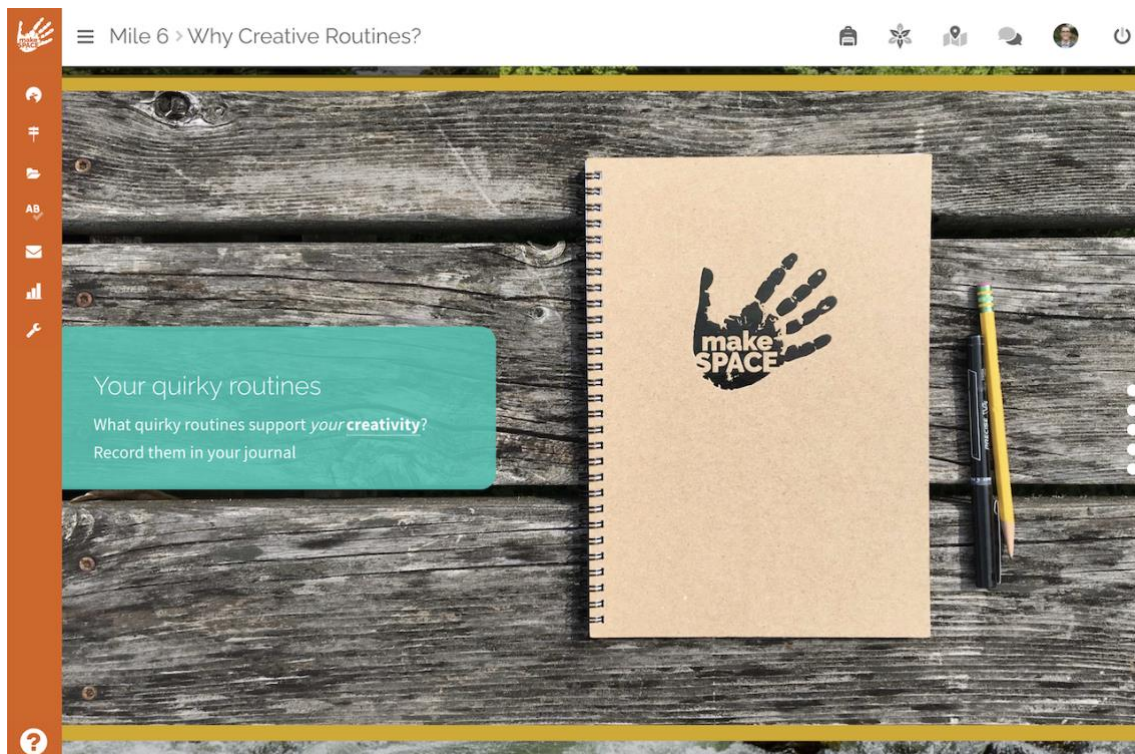


*Figure 5*. A screenshot from Foundation Course showing the visual cues to prompt teachers to engage with their pencil-and-paper journal for reflection, creative exercises or note-taking during videos
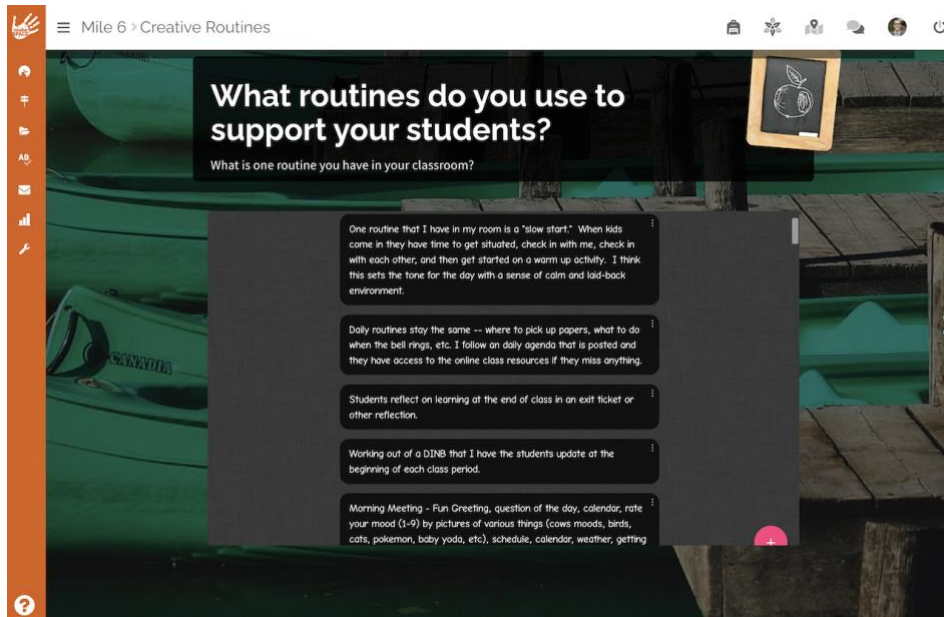
*Figure 6.* A "slim forum" incorporating the web-based Padlet app to provide another embedded way for teachers to interact and connect with one another
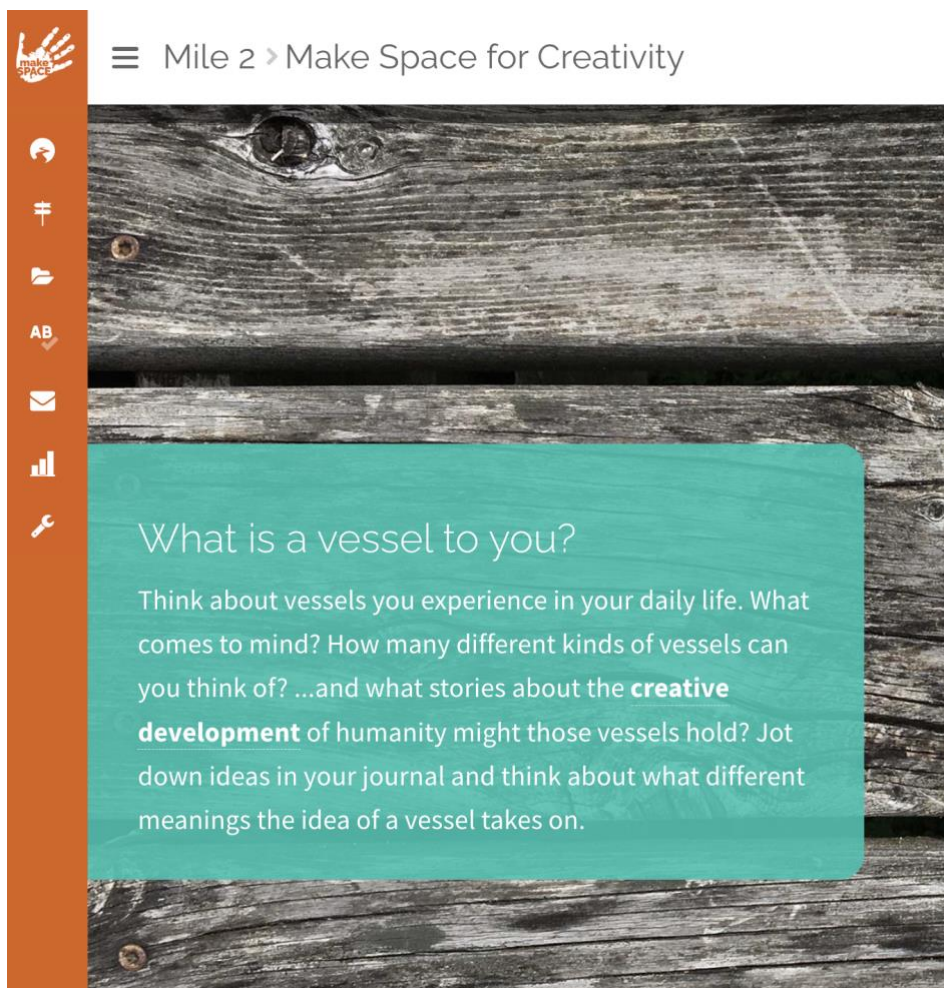


*Figure 7.* This screenshot shows "creative development" in italics and in bold. Participants can click on this glossary term and find a variety of resources exploring the concept further.
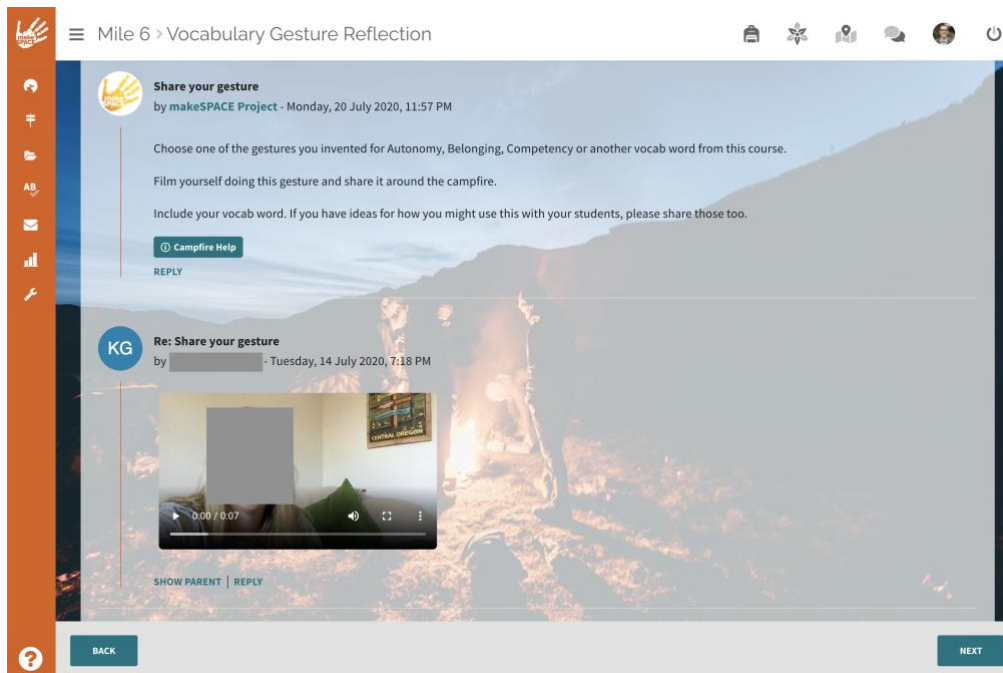
*Figure 8.* Screenshot from Foundation Course showing a discussion forum asking teachers to capture and share a video of themselves doing an original gesture from the CEF. Participant's face and name are covered to protect anonymity. Note the bonfire around a campsite in the background – a continuation of the river journey metaphor.

Table 6
*Innovations to version 2.0 of online Foundation Course based on teacher input aligned to NL dimensions*

| NL dimension & teacher | Innovations in re-design of Foundation Course (version 2.0) |
|---|---|
| (1) Provide more concrete examples and strategies that are relevant to teachers | Early in the course, teachers are introduced to several real arts integration teacher practitioners who share stories from their own development and provide their own examples. These profiles are programmed as "choose your own adventure" mini-paths personalised to teachers' interest (see Figure 4). |
| (2) Smaller chunks of content and better navigation, linearity, and facilitation | Larger packaged files (using programmes like Captivate or Articulate) were broken apart into smaller mp4 videos with text breaking up each individual page of videos. Teachers are cued to engage with their paper-and-pencil journals for reflective or creative exercises though a page break showing a picture of their journal (see Figure 5). |
| (3) More playfulness and use of paper-and-pencil journal to process content | The instructional designer programmed a new mini-forum format by integrating the web-based Padlet App into a page with videos and other content. In these mini-forums teachers were prompted to share short answer ideas to questions about creative teaching or respond to different creative routine practices. Teachers could scroll through others' anonymous contributions like a message board, which provided another way to connect and interact with others asynchronously (see Figure 6). |
| (4) Additional resources to explore independently and more opportunities for autonomous pathways | Programme designers built an interactive resource library and glossary for teachers to explore independently. Whenever a glossary term was introduced in text on a course page, it is differentiated as <u>underlined</u> and **bold** so that teachers can click on it to read a definition, see a short research synopsis, and choose from a variety of additional resources to explore, including: student assessments, an explanatory video, a creative routine or a research article (Figure 7). |

| | | |
|---|---|---|
| (5) | Collaboration, shared vulnerability and creative empathy through creative risk-taking | The team designed more opportunities for teachers to share their creative work, including micro-performances, such as the *creative gesture* prompt where teachers used a video screen capture tool built into the discussion forum to film themselves making an original gesture for any component of the creative engagement framework and sharing it with others (see Figure 8). |
| (6) | Greater cultural inclusivity with content and references | Programme designers went deeper into the metaphor of a river journey with visuals and details throughout, exploring the meaning of rivers to different cultures around the world. Creative and artistic work and personas from around the world were introduced consistently throughout. |

## Discussion

We contextualise the results of this study within the field of NL where new interdisciplinary online innovations may provide transformative experiences, catalyse new human connection across boundaries and aspire toward emancipatory and liberatory goals (NLEC, 2021). The primary goals of this study were to advance new possibilities with online modalities for teachers' creative development by studying the teacher experience in new online and in-person training experiences. As part of this process to ground the findings in both the literature and teachers' authentic voices, we incorporate illustrative teacher quotations throughout the discussion. We also pose questions about what might be possible for new conceptions and realisations of NL for educators.

### Enabling creative risk-taking and the affective dimension in NL

The online experience helped teachers understand the importance of setting up the conditions for creative engagement for students to feel safe and prepared to take creative risks in their learning. However, this understanding came into focus when they experienced the strategies in-person for themselves and witnessed the importance of scaffolding to manage the strong emotions that came up. As one participant shared, "you explained, with the details and expectations, modelled and scaffolded each practice, then gave us a space that was safe to explore and learn." One teacher learned that "there's just a lot of steps that need to happen for that [creative] vulnerability to really work." The word "safe" came up often, indicating psychological safety for belonging and competency to take creative risks was paramount, reflecting core tenants of the CEF (R. C. Anderson, 2018). Being creative among peers is an interpersonal risk with high levels of built-in uncertainty, so not surprisingly, psychological safety is key in a NL context, just as in many other contexts of human development (Wanless, 2016). The NLEC (2021) design dimensions emphasise the affective component to NL. Outlined in Table 7 the revised online course added new ways to enhance the shared vulnerability of creative risks-taking with a community of peers. These findings lead to an important question for future work: How can NL for teachers create transformative and connective social and emotional learning experiences?

To reach the social justice design dimensions (NLEC, 2021), transformative NL must address threats to psychological safety so that the desire to engage in challenging material can overcome fear and anxiety. Online training can avoid creating scenarios when learners feel too embarrassed, too ashamed or a loss of identity to engage and share. For educators, this will be the wrong modelling for creative engagement and most other types of learner engagement. As others have noted, if psychological safety is established, participants can feel like active agents with choice and empowerment to co-construct meaningful experiences in their professional and personal development, affirming important aspects of their identity (Simonet et al., 2015). That sense of safety and agency can enhance important self-regulated strategies, such as offering ideas, accepting mistakes, asking for help and providing feedback to others – all essential for a high-functioning collaboration (Edmondson & Lei, 2014; Hirak et al., 2012; Lench et al., 2015). Techniques in the online learning components, such as sharing creative work and feedback with peers with a gradual increase in complexity, appeared to contribute to this sense of safety and belonging for taking creative risks. Sharing videos of metaphoric gestures to represent new vocabulary is a good example of an elevated level of risk-taking in the revised version of the course that can build greater connection among participants.

Research indicates that intellectual risk-taking is key to growing creative potential into creative action and achievement (Beghetto et al., 2021). The results indicated that teachers not only experienced this connection

for themselves but also saw how important it is for student learning and their role to establish conducive learning conditions. In the revised version of the online course, new strategies were employed to foster more participant sharing, interaction, creative challenges in line with NLEC (2021) design dimensions of playfulness and collaboration. The field of NL might benefit from considering the following question: How can NL for adults leverage collaborative creative experience to establish psychological safety, activate risk-taking and deepen learning across domains?

## Modelling new teaching practices through NL experiences

Regarding implementation, teachers felt success getting students to be more open, especially at the beginning of the school year. As one participant noted, their implementation of the creative strategies seemed to be less about actual "art" activities and more about "eliciting student interaction and student voice," revealing awareness about the purpose behind the practice. Teachers also shared that strategies had become part of their teaching toolkit, they saw increased student confidence and experienced better classroom management because of increased student engagement during creative learning. For instance, one participant who implemented a 3D modelling activity with their students reported feeling "shocked" by their students' creative engagement with the content.

Participants also reported changes in their own thought processes after taking the Foundation course. The results of the end-of-module surveys and the post-course focus groups revealed that content was new to teachers, especially in the hands-on, engaging, and research-based format. As one teacher put it, "the thing that really like that I think about a lot now is like on the online course we learned a lot about how like creativity is not something that you're born with, it's something that you kind of develop, which was like a different way of thinking of it." This perspective illustrates the latent potential of NL to provide new perspectives and a self-paced, personalised experience to make meaning of new ideas (Bates et al., 2016; Fishman et al., 2013).

Another teacher shared the course helped them better connect with their students:

> I definitely feel like it's helped me with getting to know my kids better, and I feel like if I use creative things, there has been more room for students to tell me things … that I wouldn't have known were going on in their lives before that moment.

Given that beliefs and mindsets about creativity are hard to shift (Bereczki & Kárpáti, 2018), what are other fundamental beliefs about teaching, learning, and youth development that innovative and reflective approaches to NL can address?

## Implications for future networked learning innovations

Two other published studies have suggested promising effectiveness of makeSPACE training for developing teachers' creative agency, resilience, and joy and reducing their secondary traumatic stress, even during the year-long COVID-19 pandemic disruption of 2020–2021 (R. C. Anderson et al., 2021; R. C. Anderson, Katz-Buonincontro, Bousselot et al., 2022; R. C. Anderson, Katz-Buonincontro, Livie et al., 2022). Those promising results suggest creative engagement within a NL community may be valuable more broadly. The findings from this current study expand on several NLEC (2021) design dimensions that may be important considerations for others. The following six design principles build on the call from Parchoma (2011, p. 81) for NL to become a site for "political, social, technological, pedagogical and philosophical creativity directed toward ongoing understanding of dynamic, networked teaching and learning experiences":

(1) *Design for high engagement and interactivity:* Numerous exercises can be creative, surprising, humorous, playful and multimodal (e.g., visual, auditory, hands-on with materials on site) to break up more passive forms of content delivery.
(2) *Use a cohort-based model*: If feasible, use cohorts of learners to make NL collaborative and creative. This means engaging in online trainings together and progressing in a similar time frame so that authentic sharing can be meaningful.
(3) *Model and message concepts*: Bring concepts grounded in current theory and research to life through careful modeling and messaging for adult learners.

(4) *Design with challenge and complexity*: Gradually increase and model creative risk-taking and encourage shared vulnerability through interdependence toward a common understanding and goal across a cohort of participants.

(5) *Model instructional routines and strategies*: Help teachers build confidence in their skill building by making learning actionable, adaptable, and relevant to different learning contexts. Discussion forum posts can ask for photo-, video- or audio-based uploads. Making explicit reference to a paper-and-pencil journal or notebook and prompting for uploaded photos can be effective.

(6) *Leverage practitioner inquiry and self-reflection*: Beliefs, skills, practices and self-efficacy can shift when teachers think about powerful learning experiences in their own life and then shift that focus toward the student experience.

## Limitations

This study consisted of a small pilot group of teacher participants from four schools and focused on the initial development and usability phase of the research project. As such, the teacher perceptions are grounded in this specific context and not meant to be generalisable, but rather meant to provoke contextualised findings that can be used for adapting to the design of other online trainings for teachers. The small group of teacher participants were self-selected, potentially introducing selection bias. Many of the participating teachers did not have a chance to implement creative strategies into their classroom practice, and this study did not include a comparison group, making it impossible to rule out other confounding factors. The platform used to implement the online networked experiences is customisable through intensive programming from an expert – some of the solutions may not be feasible and generalisable for others.

## Conclusion

Overall, the sample of rural teachers who collaborated as early users and collaborative designers found the networked professional learning experience effective and valuable. Their suggestions led to substantial improvements and advancements making the platform more flexible, collaborative and embodied in the creative learning approach. Given the current state of teacher demoralisation and the crisis of teachers leaving the profession after the tumultuous events of the COVID-19 pandemic (Steiner & Woo, 2021), the networked and personalised PD approach to creative development may help reinvigorate teachers' well-being and desire to remain in teaching (R. C. Anderson, Katz-Buonincontro, Livie et al., 2022). In this way, NL innovations may become an accessible, transformative approach to keeping educators connected, enlivened, challenged, and flourishing in their important work. Continued innovations will push the boundaries on what forms NL can take and the social justice agenda NL can catalyse. The expanded design principles and practical innovations that emerged can generate new solutions to address the persistent inequities and challenges facing education – starting with the invaluable resource of educator creativity and care.

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