

# Tinkering toward teacher learning: a case for critical playful literacies in teacher education

Tinkering  
toward teacher  
learning

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## Abstract

**Purpose** – The purpose of this paper is to re-center playfulness as a humanizing approach in teacher education. As teachers navigate the current moment of heightened control, surveillance, and systemic inequity, these proposed moves in teacher education can be transgressive. Rather than play as relegated to childhood or infancy, what does it look like to continue to be “playful” in teaching and teacher education?

**Design/methodology/approach** – To examine how teacher educators may design for teachers’ critical playful literacies, the authors offer three “worked examples” (Gee, 2009) of preservice teachers’ playful practices in an English literacies teacher education course.

**Findings** – The authors highlight instructional design elements pertinent to co-designing for teachers’ play and playful literacies in teacher education: generative constraints to practice everyday ingenuity, figuring it out to foster teacher agency and debriefs to interrupt the teaching’s perpetual performance.

**Originality/value** – The term “playful,” as a descriptor of practice and qualifier of activity appears frequently in educational literature across domains. The relationship of play to critical literacies – and, more specifically, educators’ literacies and learning – is less frequently explored.

**Keywords** Literacies, Teacher education, Literacy pedagogy, Game-based learning, Humanizing pedagogy

**Paper type** Research paper

We write at a time when teaching and learning are increasingly ideologically contested, emotionally fraught and – in some cases – physically dangerous. From COVID disruption to culture war legislation, educational practice is defined by a climate of widespread loss and fear. For many educators, the risks of teaching have become palpable, resulting in lost autonomy, safety and opportunity for creativity. Consequently, it is imperative to ask: how do we – as educators and teacher educators – imagine and develop humanizing and playful ways of navigating the gravity of the moment? In this article, we contend that play, and specifically critical play, is needed at times of great uncertainty, heightened surveillance and systemic inequity, even when such playful approaches are risky, transgressive and seemingly disconnected from soundbite debates about schooling.

Our contribution to this special issue on playful literacies expressly concerns the critical potentials of play within the work of teacher education. Moreover, we write as teacher educators grappling with a reality observed by Cochran-Smith *et al.* (2018):



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The teacher education accountability paradigm has constricted the curriculum, reduced the spaces for critical discussion and diminished the possibilities for teachers and teacher educators to work with others as agents of school and social change (p. 153).

Deficit views of teachers and their professionalism are accompanied by diminished possibilities to enact agile instructional practices. Nationwide book bans, partisan attacks on (frequently misinterpreted) critical race theory and legislation like Florida's so-called "Stop WOKE" act represent regressive changes that restrict teachers' ability to select content and instructional methods and whether and how they can be responsive to students and their lived experiences. Amidst curricular restrictions, increased suppression of criticality, and the continued deprofessionalization of teachers, we ask: how might play be considered a form of critical literacies? How might educator play contribute to broadened approaches to teaching and learning, particularly toward pedagogies that amplify creativity, iteration and socioculturally situated practice?

In such a sociopolitical climate, teachers' play is not without risk or consequence. Teachers need brave spaces within which to practice sitting with the multidimensional sociopolitical and curricular tensions felt when designing instruction and practicing improvisational and playful mindsets in working toward more equitable and possible futures (Smith *et al.*, 2021; Philip, 2019). We propose moves that center playfulness, space to "just go for it," try, not know and collaborate in ways that open new possibilities for working through the unknown. We take up principles of play that have been theorized as everyday critical literacies in childhood (Campano *et al.*, 2016; Dyson, 1987; Vasquez, 2003) to imagine what it might look like to engage playfulness in teaching and teacher education. Furthermore, we ask: how might decisions to embrace discovery and improvisation be understood as worthwhile playful moves that are potentially subversive in challenging restrictive norms?

To approach these questions, we offer worked examples (Gee, 2009) of an experimental approach to teacher education that came from our own practice as literacies teacher educators. In our exploration, we highlight instructional design elements most pertinent to co-designing for teachers' playful literacies in teacher education. Specifically, we name three principles of co-designing to support teachers' playful literacies as transformative and humanizing: generative constraints to practice everyday ingenuity, "Figuring it out" to foster teacher agency and debriefs to interrupt teaching's perpetual performance.

### **Playful literacies for educators**

We begin by briefly summarizing three conceptually-rooted assumptions about play drawn from literature traditionally focused on children that are resonant with our commitment to critical literacies (Pandya *et al.*, 2021) as teacher educators. The term "playful," as a descriptor of practice and qualifier of activity, frequently appears in educational literature across domains, including game-based learning, digital media and educational technology (Salen, 2008; Steinkuehler *et al.*, 2012). Nonetheless, the relationship of play to critical literacies – and, more specifically, educators' literacies and learning – is less frequently explored (useful exceptions include Kim and Johnson, 2021; Smith *et al.*, 2016).

We are interested in play across the lifespan of learning with particular concern for how teachers are positioned in relation to play. In our work, we understand that critical approaches to literacies education and teacher education emphasize active "position-taking" for both students and teachers so as "to critique and reconstruct the social fields in which they live and work" (Luke, 2000, p. 451). Expressions of agency are central to critical position-taking, consisting of interwoven action and reflection (Freire, 1970). We use notions and expressions of play in relation to critical literacies, as germane to literacies (teacher)

education and as aligned with more expansive practices of educator ingenuity and agency (Williams-Pierce, 2016).

First, play can be – but is not reducible to – fun. Rather, play can be risky, vulnerable and unfamiliar (Salen, 2008) while also aspirational for participants enjoined in the emergent social relations of play (Huizinga, 1949; Paley, 1992). For example, the Vygotsky (1978) concept of “playful imagination” has influenced Gutiérrez *et al.* (2017) concern for “everyday ingenuity” and how learning in out-of-school and family-based settings can include “playfulness, resourcefulness, making, tinkering, fixing, and new forms of boundary crossing” (p. 45). In other words, play can be purposeful and consequential, whether for children or adults (Roskos and Christie, 2011). As teacher educators, we are heartened by efforts to see play as serious and to take play more seriously for children and adults alike; as Kim and Johnson (2021) suggest, “Playful practices build on a growing area of literacy research that proposes the possibilities of play for disrupting conventional curriculum and instruction” (p. 243). While play can be fun, it can also be a more critically-oriented social practice that reflects learners’ everyday creativity, imagination and agency.

Second, play can be a subversive and transformative act. Outside of school settings, everyday play can be a form of resistance and critique that boldly reveals the inadequacies of designs, systems and social relationships (Flanagan, 2009; Sicart, 2014). Within the context of formal schooling, and specifically within literacies education, Mora *et al.* (2021) have suggested that critical literacies can include “develop[ing] a real criticality that sees text engagement as disruption, as not going with the orthodoxy of the curriculum but proposing new ways to play with texts” (p. 154). We further contend that critical approaches to play, especially within teacher learning, can be resonant with Philip’s (2019) call for “greater attention in teacher education to the improvisational dimensions of teaching that are increasingly undervalued in rigid treatments of practice [...] [and] essential for novice teachers to learn the relational and humanistic aspects of teaching” (p. 3). As potentially subversive and transformative, play can make visible sanctioned practices and social norms that are either encouraged or prohibited (Prinsloo, 2004). We argue that a critical stance toward educators’ play can – and should – elicit concern for how social activity, like teaching and learning, can be perceived as transgressive or, adjacently, as innovative (Kalir, 2016).

Third, play can help learners to imagine new possibilities through participation in divergent activities with unanticipated outcomes. Schooling, in its predominant configurations, is frequently the antithesis of play and playful imagination – scripted learning outcomes are predetermined, correct answers are featured in rote curricula and tightly controlled pathways shape how teachers teach and students inquire about phenomena. Play, however, eschews the known, the singular and the scripted (Suits, 1978). Playful, interest-driven sensibilities, such as those integral to making and tinkering, present lower barriers to participation and inquiry (Vossoughi and Bevan, 2014). They expand curiosity in problem-solving, resulting in outcomes that are not prescribed or controlled. A more critical and aspirational appreciation for play is resonant with Mehta *et al.* (2022) advocacy that educators must work to counter standardization through play, creativity and imagination toward more just futures (p. 36). Furthermore, and within the purview of literacies education, it is feasible that learners’ reading and writing of “multimodal narratives serve as texts where students can play with, resist, and critique dominant discourses while they reimagine new possibilities for alternative social realities through the production of counternarratives” (Gainer, 2010, p. 365). In light of these conceptual commitments, we share our inquiry into co-designing to support teachers’ playful literacies within a teacher education context.

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### Worked examples of co-designing teacher play

To examine how we as teacher educators co-designed for teachers' critical playful literacies, we offer three "worked examples" (Gee, 2009) of teachers' playful practices in game-like activities (Kim and Johnson, 2021). Our worked examples come from Cherise's participatory design research at a large west coast university in the third year of collaboratively redesigning a graduate-level course for preservice English teachers (PSTs) called Technology Integration for English Language Arts Teachers Grades 6–12 (TIELA). We focus on the collaborative redesign of this course, specifically a module on teachers' tinkering (Vossoughi and Bevan, 2014) to create multimodal compositions and interactive media.

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### Data sources of co-design process

The TIELA course was collaboratively redesigned with Paula (a pseudonym), the course Teaching Assistant and a previous student from the course who, at the time, was a grades 9–12 teacher. Using a design research approach (Gutiérrez and Jurow, 2016), Cherise and Paula held weekly planning meetings to review field notes and collective recollections from the class sessions, discuss student work and iterate on the design of the course. An earlier phase of the course illuminated teachers' desire for more hands-on time to explore and design with digital tools in ways that would better prepare them for the context of urban high school English literacies classrooms. Drawing from teacher interviews and surveys from that pilot phase, Cherise and Paula redesigned the course to include dedicated time for the situated use of digital tools, extending the course's tinker module to prioritize multimodal content creation alongside interactive teaching demonstrations modeled by local veteran teachers. Thus, our data sources for constructing the worked examples drew from these collaborative redesign sessions, including detailed notes taken during collaborative, reflective design meetings; and module materials that resulted from planning sessions. To identify teachers' playful practices in response to the redesigned module, we culled data from PSTs' loosely-structured, weekly reflective posts and each interaction with peer posts (e.g. upvoting, tagging and commenting) from the course Google + Communities platform.

### Constructing worked examples

Worked examples concretize theory in action through a detailed example allowing for an exploration of theoretical issues in emergent phenomena (Gee, 2009). The course centered *tinkering*, or hands-on iteration through experimentation, as a playful mode of teacher preparation in digital technologies for English literacies classrooms. Therefore, our analysis began with Cherise summarizing collaboratively redesigned instructional elements within a tinkering module that were the result of instructionally iterative moments – those during the collaborative planning sessions when Cherise and Paula recognized notable patterns in teachers' responses to tinkering and redesigned their instruction to meet the needs of the moment. Constructing the worked examples involved a recursive, collaborative writing process moving across co-designed planning documents, module elements and teachers' interactions, and between theorizing the playful literacies, we recognized and reinterpreting the play by returning to the data to add details to the examples. This recursive process supported us in grounding theory of play in teachers' action – in moments when play was not only fun but unfamiliar, risky and/or aspirational, and when teachers' play was resistant and disruptive of schooling norms, etc. In the worked examples, we have interwoven theoretical threads with data details, allowing each to inform the other. This analysis resulted in three worked examples that explore instructional design elements to foster teachers' critical playful literacies: *generative constraints to practice everyday ingenuity*,

“figuring it out” to foster teacher agency and debriefs to interrupt the teaching’s perpetual performance.

### Learning from teachers’ playful literacies in co-designed tinker sessions

The redesigned tinker module involved time-constrained design challenges for educators, without being graded, to try out digital tools with English literacies content by producing multimodal compositions. The sessions occurred four times in the middle five-week section of the 15-week course while the class was concurrently reading Paulo Coelho’s *The Alchemist* in their English methods course. To launch the Tinker module of the course, Cherise and Paula introduced a two-part definition of “tinker” drawn from the Merriam-Webster dictionary:

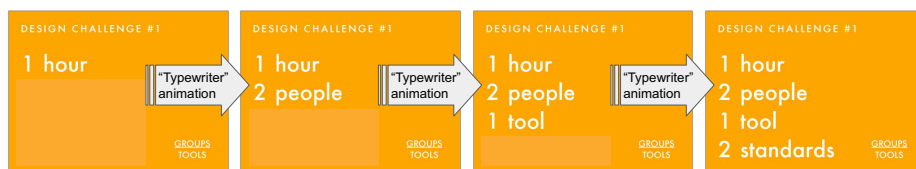
- (1) to work as a tinker; to mend metal utensils (and hence, any material objects), especially in a clumsy, bungling or imperfect way; and
- (2) to work at something (immaterial) clumsily or imperfectly, especially in the way of attempted repair or improvement; also, more vaguely, to occupy oneself about something in a trifling or aimless way.

The instructors drew attention to the terms “clumsy” and “imperfectly” and encouraged teachers to return to those throughout the design challenges.

The four design challenges focused on vocabulary, text analysis, presentations and video composition. In game-like fashion, each design challenge rolled out in real-time during in-person class sessions, which were held in a computer lab where PSTs had individual access to computers, and many had their own devices, such as tablets or cell phones. Each week, PSTs sat in anticipation as the co-instructors slowly unveiled that session’s task on a large screen at the front of the room. The launch of the challenge was designed to be suspenseful, and the slides featured a typewriter animation to unveil the task constraints to the group, one letter and line at a time (Figure 1). To continue the anticipation, the challenge’s teams were revealed using an online randomizer tool.

### Generative constraints to practice everyday ingenuity

In co-designing to support teachers’ playful literacies, we found developing *generative constraints* (Davis *et al.*, 2008) to be a site of heightened emotion and energy during which PSTs drew from and expanded their repertoires of practice (Gutiérrez and Rogoff, 2003) to experience moments of discovery and recognize their “everyday ingenuity” (Gutiérrez *et al.*, 2017). Smith and Kennett (2017) emphasize a “just enough” principle when designing generative constraints: just enough structure to spark collective meaning-making but not too much to stifle process, product or practices people bring to bear. The purpose of generative constraints is to do the opposite of the more typical approach in education, such as creating rules and procedures to produce prescriptive outcomes from students’ activity.



**Figure 1.**  
The first design challenge directions progressed line by line to unveil the constraints one at a time

Source: Author’s own creation/work

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Rather, with generation as the goal, the boundaries or constraints assigned exist to spur innovation and possibility.

In the first design challenge, focused on exploring a concept's "shades of meaning" through multiple modes, the PSTs worked within generative constraints of time, team, tool and learning target. In an hour's time, they were tasked to co-create a multimedia representation of a chosen word from their shared text, *The Alchemist*. To spur thinking about the chosen vocabulary term and expand teachers' familiarity with digital tools and genres, the PSTs were limited in choosing one of six options they had previously indicated they were unfamiliar with: Google Earth, Quizlet, Listicle, Popplet, Flipagram and Canva. In these ways, not only did Cherise and Paula carefully craft constraints that would allow for divergent outcomes, but co-designed these constraints to also support teachers in drawing on their existing repertoires of practice, including other activities in their English literacies educator program.

Though the room quickly filled with bursts of laughter and increased movement as teachers began creating their multimedia artifacts, PSTs also reflected on the sense of urgency and pressure the constraints added to their tinkering. One PST, Erin, reflected that the "on-demand nature leaves me feeling as though I'm not prepared, and that there's nothing I can do to prepare for class each week." She continued, "Overall, the tinker module has been valuable for me in that it's forcing me to engage in something that is uncomfortable in order to demonstrate that it's possible." Here the unpredictable constraints and game-like conditions of design challenges worked to simulate the "unknown" elements of everyday teaching, particularly when teachers are working to be responsive educators. Erin, for one, began to recognize and trust in her own ingenuity – her ability to try, experiment and expand her repertoire of literacies practices and imagine the possibilities of engaging students in her future literacy classroom likewise.

These teachers demonstrated a focus on assets rather than deficits and engaged the design challenge constraints as opportunities to take inventory of their repertoires and resources. For instance, although new tools presented a constraint, many PSTs made comparisons to other digital tools they had used before. During this first design challenge, Diana noted how as a pair, she and her assigned partner, Cindy, were unfamiliar with using their phones to create multimedia using Flipagram. However, they drew from their familiarity with social sharing and multimedia creation practices of Instagram and Vine and using Google to find pictures. Their existing repertoires of practice joined with moments of discovery and excitement as they experienced new forms of creation and dissemination. Cindy reported feeling hesitation that their artifact "would appear trivial" because it was created on mobile phones and wondered if it "would appear to be a legitimate and truly a testament to the nuances of the word."

Cindy experienced a moment of discovery when she and her partner, Diana, presented to the class and saw their multimedia creation on the larger projector's screen and through the classroom speakers. She reflected, "With the addition of Ed Sheeran's pop hit 'Shape of You,' the lyrics and vibe of which we found strikingly attuned to the classic definition of caress, running in the background of images with relevant quotes from the text, we found that Flipagram is a wonderful way for students to quickly incorporate multiple elements into a multisensory experience when explaining a word, idea or concept." Although Cindy had experience creating images and audio on Instagram and Vine, the constraints of the moment – creating and sharing to a whole group within an hour – sparked new insight for her about how teachers' chosen tools impact the types of knowledge students produce. She came to see their artifact as more than "the words on a page [or a] dictionary definition" but rather a



“multisensory experience.” In such ways, the PSTs practiced ingenuity as they were afforded open-ended opportunities to create literacy artifacts.

Constraints are a reality in schools. Especially when involving technologies, teachers have limited choice, and their options – access to technology, kinds of technology, internet reliability, collaborators and relationship to disciplinary content and practices – are mediated by perpetuated inequities of practice and significant resource disparities (Walkins, 2018). In these tinker sessions, teachers were not just learning to use new digital tools but engaging in playful dress rehearsals of the very real constraints they would experience in their classrooms. Reflecting on the tinker sessions, Allison explained that though in her current school, she had “very little access to technology in the actual classroom”, and thus, had not been able to use the range of apps and devices she enjoyed in this class, she had been “trying to transport the ethos of this class (student-centered learning) to what I do” through “personal whiteboards, learning stations, and exploration time for students.” Here Allison demonstrates the trust she had developed in her abilities to problem-solve within constraints and improvise her way toward a humanizing ethos, including students’ playful practices, that she was dedicated to taking up in her English literacies teaching.

### “Figuring it out” to foster teacher agency

A second principle of co-designing for supporting teachers’ playful literacies was *figuring it out to foster teacher agency*. Rather than an instructor-led approach or previously-defined pathways, the course design emphasized PSTs working together to navigate new digital and pedagogical experiences. For example, during the tinker sessions, when PSTs asked for more directions from Cherise and Paula, such as questions about how to find certain features in a platform or what content they should focus on in the text, the instructors intentionally veered away from issuing “answers” or directives. Instead, Cherise and Paula encouraged them to take up improvisational mindsets – to explore, try it out and work together (i.e. Philip, 2019). This practice was not about abandoning the PSTs in their moments of need or forcing discomfort; rather, it was an intentionally designed element to position them as agentive designers in a community of collaborators. Such an approach marks a radical shift from the increasing curricular and pedagogical rigidity of schooling practice that requires teachers’ compliance and complicity in dehumanizing schooling practices. The tinkering sessions broke down what might be a default approach to what learners should do in a formal learning space. Students often look to teachers for answers about what they “should” do, with questions like “How long does it (the essay or writing) have to be,” and “What should I write about?” Instead of instructor directives in response to “What am I supposed to do as a learner?” tinkering sessions encourage a “figure-it-outable” ethos. In teacher education, this ethos reorients normalized directives that invoke assumptions about what a teacher already “knows” toward cultivating space for teachers to “practice not knowing.” Such a stance can be especially generative in working with digital tools that are themselves in perpetual beta, where the how of coming to know is sometimes more salient than the knowledge itself.

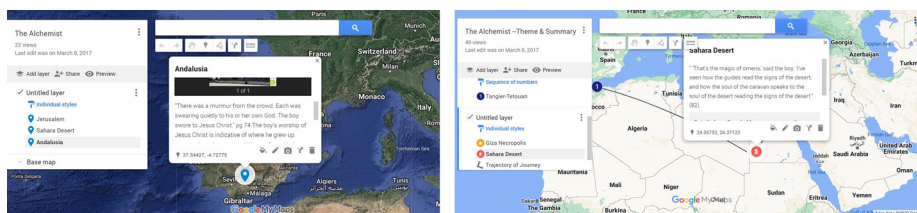
In the place of compliance, as instructors, Cherise and Paula worked to foster agency via even the mundane choices within digital content creation with the hope that in working the muscles of reflection and action (Freire, 1970), the PSTs would build their capacity for self-advocacy, confident in their own ingenuity and equipped to design their teaching to permit their students’ agency as well. The second design challenge focused on having teachers create an artifact reflecting again their common text, *The Alchemist* that they would present to the class. This design challenge was intentionally open-ended with no directions on what exactly to create. The generative constraints of the design challenge only included: “using

your selected tool, create a digital artifact that demonstrates the skills expressed in your Common Core State Standards with the assigned text, pages 65–82 of *The Alchemist*.” One pair, Valerie and Erin, chose to explore the shared text using Google Maps. In her free-choice reflection that week, Valerie started by sharing: “I had a very difficult time with creating a Google map based on the chapter we read in the Alchemist.” She found “the learning curve was very high” in terms of the technical aspects of their chosen digital tool, sharing “I found that there were no directions on how to make maps, or at least no directions that were easily accessible which added to my frustration, neediness and fear of failure.” Paula’s inclination to look for directions on using the digital tool reflects teaching where learners are conditioned to replicate models, regurgitate information and ultimately trust external roadmaps more than they trust themselves. Her decision to take on the task as exploration reframed the socially situated risk of failure she felt in being invited to play as a student (Salen, 2008). In her reflection, Paula shared how she worked to shift her mindset to move toward a more playful role as a learner: “It took a good while just getting into the mindset that my creation may fail and that I would have to possibly do certain processes multiple times in order to reach my intended outcome.” Her new perspective reframed the vulnerability she felt in the unknowns and repositioned her to practice iteration and assert agency as a designer. Ironically, these insights were brought about by her acceptance of the risk of perceived failure, which helped her enact a playful approach to the unknowns.

Valerie’s Google Map artifact ultimately featured a layering of quotations and analysis at three geographical points: Jerusalem, the Sahara Desert and Andalusia (Figure 2). In “figuring it out,” she moved from a technical focus on how to use the tool to agentively forwarding her pedagogical priorities. Veronica’s play with the tool demonstrated her appropriating of its affordances to foreground literary analysis, specifically interpretive engagement with the text and visualization of character development.

The PSTs in the course often connected their feelings of both neediness and fear of failure in the design challenges in imagining how young people are positioned and feel in English literacies courses. Taking on their discovered roles as agentive designers, educators expressed commitment to their own creative agency and envisioned more agency for their future students. Allison, for instance, critically reflected that she had plans to tinker with the prescriptive ways she had been evaluated in the past and was currently evaluating students’ compositions with rubrics in her student teaching placement. In her reflections, she worked to “critique and reconstruct the social fields” (Luke, 2000, p. 451) of schooling, brainstorming how she could add lines to the rubrics that would “include factors such as ‘risk-taking,’ ‘relating content to your own experience,’ or ‘use of creativity.’” She pondered further how she would go about evaluating these processes and landed on the idea that students would need to be trusted in their own assessments of their growing creativity and that she would open the discussion to her students about if and how these aspects should be accounted for

**Figure 2.**  
Side-by-side  
depictions of Valerie’s  
(left) and Erin’s  
(right) Google Maps



**Source:** Author’s own creation/work



in the class. More than added lines on a rubric, such a repositioning of teacher and student relations reorganizes the power to know and learn in the English literacies classroom.

In tinker sessions designed for teachers to “figure it out” together, teachers are met with trust and space to play, resisting normalized ways of doing school, such as a sit-and-get model with direct instruction as a primary method. Rather than having to follow oft-recycled protocols for interaction, creation and conversation, educators orient their time and tasks to serve their needs, exemplifying play’s ability to disrupt prescriptive structures of curriculum and instruction (Kim and Johnson, 2021), specifically in teacher education. Teachers, as playful designers, employ agency to explore their ways through a task – often together – and, in the process, benefit from the collaborative discourse and idea refinement that reflect possibilities of play.

### **Debriefs to interrupt teaching’s perpetual performance**

A third principle of co-designing for supporting teachers’ playful literacies was creating *debriefs to interrupt teaching’s perpetual performance*. The debriefs, structured as whole-group conversations, reinforced the value of the playful nature of their shared activities for learning, offering time, structure and permission to have sustained conversations about their own learning – aha moments, questions and mistakes – before turning their attention to students’ future learning. After every tinker challenge, Cherise and Paula led the PSTs and instructors in reflecting on the experience of the day’s design challenge. Within these dialogic spaces, which took different forms, PSTs responded to prompting questions such as, “What do you notice as the affordances of the tool you engaged, specifically for literacy learning?” and “What challenges did you encounter when using the tool and how did you navigate them? What was helpful and what was not helpful in that process?” These debriefs featured a “no right answers” approach that resists the inclination to guide and evaluate at every step in teacher training. Rather, the debriefs served as a malleable space to think aloud and share their ruminations with colleagues who would join them in sharing their ideas as well. One debrief configuration involved a mini-presentation by the paired teachers to other colleagues using a slidedeck template to guide reflection about their tinkering processes and implications for their future teaching. Debriefs were also structured into weekly reflective blog posts in the vein of those suggested by Gay (2010) to engage teachers in nurturing their attentiveness to their and students’ sociocultural positionalities in relation to their English literacies teaching. Sometimes, the instructor-issued prompts were specific to that week’s course content, and in others, they instructed PSTs to reflect critically on specific aspects of their digital pedagogies. The blog prompts were consistent invitations for PSTs to reflect on and share their learning with their learning community, which included each other as a cohort, as well as invited local and digitally-networked educators who demonstrated commitments to equity in their teaching with digital tools.

Following the second design challenge focused on creating multimedia presentations, teachers were prompted to free-write about anything they wanted. More than half wrote reflections on their own learning during recent tinker challenges. One PST, Christy, reflected on the tinker time as “incredibly helpful and fun because of how hands-on it is.” She went on to offer more details about the context:

This module has demanded my full and undivided attention, which is kind of refreshing because I am able to forget about my outside stresses for a few hours. This time of the program, as we keep getting told, is the most challenging because of this constant juggling (edTPA, lesson planning, grad school, life, etc.) and it is refreshing for me to feel like I am not allowed to think about all of those things because I am creating and learning how to use different tools.

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Christy shared that while “oftentimes my attention is being pulled in other directions during classes and I find myself multitasking (or not paying attention to class),” the tinker time made it so that she was “unable to let my mind wonder [sic] off.” Instead, her attention was grounded in the moment: “I have to focus on the artifact I am trying to build with or without a team.” This process of slowing down and staying present seemed to have a welcome effect on Christy’s coping with other stressors within this career stage.

While much of teacher education is oriented toward creating pedagogical artifacts, lesson plans and other tools for teaching, a critical stance of play critiques the pace and constant need for performance in teachers’ practice. The tinker sessions’ design moved PSTs’ focus away from immediate translation into pedagogical tools toward a more focused practice of invention, ingenuity and agency in design. Within the given time, teachers collaborated to make artifacts that would be an object for reflection and learning, not for use in teaching. The debriefs, in this sense, provided a spatial and temporal bridge between reflecting on the playful literacies they engaged in the design challenges as learning objects and the potential of playful multimedia literacies engagement for their students in the future.

As tools, affordances and digital literacy practices are constantly evolving, tinker sessions’ debriefs provide the space teachers need to develop their own fluencies and criteria for learning, as well as begin to design to support their students in developing their own (Smith *et al.*, 2021). For example, Christy shared that while she was at first interested in “cool tools” and a guiding ethos of “anything but paper,” through the design challenge debriefs, she came to appreciate the possibilities of a meaningful few: “I’ve come to the realization that I do not need to use every digital tool there is to be successful while being meaningful and purposeful in my teaching.” She more carefully considered a wider range of tools, evaluating them for how they aligned with her pedagogical goals, recognizing that “simple does not mean easy.” Through the series of design and debrief – without the immediate need to put her learning into practice – Christy had the time and space to reimagine the purpose of engaging in digital multimedia creation, moving from cool tools to meaningful learning opportunities.

Furthermore, in the debriefs, as they talked through their design choices and critically reflected on what they learned, teachers’ playful literacies learning became a resource for their colleagues. Cherise and Paula saw teachers’ insights re-emerge in their colleagues’ subsequent work with digital tools and pedagogy. For example, Christy shared how, following Cindy and Diana’s demo of Flipagram, she was inspired to “continue to explore it through a teacher lens.” She “tinkered around with it” using her phone and asked, “how could I use this in my classroom?” Through the debrief, Cindy and Diana modeled the use of the tool and began to discuss how they would set and implement their pedagogical priorities. From there, Christy took up those questions and the idea of tinkering in her own practice to explore new tools as a teacher. A designed tinker session validated teachers’ need for space for their own playful learning – something that teachers do not usually get the chance to prioritize. Christy’s learning from colleagues offered her a reference point for widened approaches to learning in community, coupled with a chance to practice her own inventiveness beyond top-down scripts or other normalized practices of schooling and teacher education. Debriefs turned the teachers’ gaze to their own learning and experience before positioning them as a “sage on the stage.” Instead of adhering to the demands of teaching as performance, they reclaimed room for imagination and dreaming up new possibilities, interrupting the perpetuation of stagnant practices that are easily reproduced when there is no room for inventiveness.

### **Implications and conclusion**

We have presented an approach to teacher learning aimed at reclaiming the transformative potentials of play, resisting limiting high-stakes teacher education environments and angled toward

the humanizing potentials of centering ingenuity, agency and reflection in education. Across teachers' tinkering sessions and specifically the design challenges, we saw several principles of critical playfulness emerge in generative ways. Teachers' playful literacies, grounded here in a critical framing, amplify vulnerability and everyday ingenuity in ways that amplify humanizing connections as individuals learn what it means to be a teacher. Tinkering scaffolds, such as using familiar technologies, engaging English literacies content and working together, helped engage teachers' collective sensemaking as resources for learning. The intentionally constrained contexts of design challenges built on teachers' repertoires to foster new forms of English literacies. In the process, teachers engaged with new tools and new (pedagogical) affordances of familiar tools in the process. The design challenges' invitations to tinker furthered teachers' playful literacies and critical digital pedagogies through experiential learning.

Too often, teachers' work is cast as formulaic and quantifiable, leaving little opportunities for playful exploration or open-ended tinkering. For practitioners, we echo [Wohlwend et al. \(2017\)](#) in calling for support structures and professional development to take up critical, collaborative and modally-rich play in "critically examining the possibilities and dilemmas" (p. 144) in making space for young people to experience playful literacies. Furthermore, teacher preparation must engage in responsive design to allow teachers to practice what [Mirra \(2019\)](#) calls "pragmatic agency [. . .] [a] key practice that allows teachers to move between their expansive visions and the enduring tensions of their school contexts" (p. 287).

For researchers examining play as a site or principle for teacher learning, we encourage continued critical questions such as: who gets to play? Under what circumstances and with what values in mind? Not all teachers' creative or experimental instructional choices are championed. Given the white middle-class monolingual normed practices of schooling, not all teachers can draw from their culturally sustaining repertoires of practices equally. How, then, are teachers of colors' playful bodies read in their schools? Which teachers are able to be playful in a way they enjoy? And how might schools affirm play to resist racialized dehumanization of teachers?

We further encourage education researchers to use worked examples ([Gee, 2009](#)) when exploring emergent theoretical terrain at the intersection of teaching and learning, such as critical play in teacher education. In treating this intersection as the perpetually emergent phenomenon it is, worked examples using critical lenses can reveal norms that perpetuate dehumanizing policy and practice.

We situate these considerations in histories that necessitate a reorientation toward justice in teaching and teacher education ([Philip, 2019](#)) and build on principles of humanizing pedagogy to imagine co-designed playful learning for teachers as a critical shift in approaches to teacher preparation and development. As teacher educators, we are careful not to place an onus of responsibility on teachers for fighting against the whitelash of this present political moment marked by "action and reaction to maintain the status quo" ([Embrick et al., 2020](#), p. 8). English literacies teacher educators must also meet this moment with imagination and reinvention, shifting our programs, courses and teaching approaches toward more humanizing and just educational futures. Furthermore, "playing" will not solve systemic inequity. In the context of teacher education and teaching, however, play does give teachers space to exercise joy and assert their humanity in the face of hostile restrictions on what it means to be a teacher, what it means to know, what it means to exercise rights to ingenuity, agency and reflective action in teaching. In this, we see play's critical potential.

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