INTRODUCTION

The benefits of creative instruction to learners are substantial (Newton, 2013). Creative teaching is effective teaching that enhances learning (Sawyer, 2011; Reilly et al., 2011; Rinkevich, 2011) and promotes creativity among learners (Nickerson, 2010; Horng et al., 2005). Understanding the effect of context on teachers is essential. Contemporary research makes it difficult to determine how important the environment is to creative instruction. The environmental contexts concerning instructional creativity are not entirely understood, and knowledge generally “sparse” (Lilly & Bramwell-Rejskind, 2003, p. 4). Beghetto describes the general lack of knowledge concerning the instructional environment a “pitfall” of creativity research in education (2007, p. 102).

The goal of this work is to address the deficiencies in knowledge concerning creative instruction. What aspects of the environment enable or limit creative instruction? This study aims answer this question by looking beyond the learner. First, by analyzing related literature. Second, investigating the key attributes of the environment. And third, by delineating the role of those attributes in mediating instructional creativity.

LITERATURE

The Four-P Model of Creativity (Rhodes, 1987) is widely adopted in creativity research because it is comprehensive, defining dimensions of creativity as person, process, product, and press (environment). A creative person is defined by the creative ability of a person. A creative process is defined by operations that are performed in order to be creative and includes thinking and decision making, which can be informed by a motivation, inspiration and perspective. A creative product is the “record” of one’s thinking, or manifestation of an idea into a “tangible form” generally regarded as unique, effective, and useful (Plucker, Beghetto & Dow, 2004; Runco & Jaeger, 2012). Creative press is defined as human-environment relationships that shape our ideas and perceptions, or contexts surrounding a “creative act.” (Hasirci & Demirkan, 2007).

The Four-P Model was used as a tool to analyze and organize literature related to creative instruction. Figure 1.1 graphically exhibits the emphasis of research. It reveals that press is not widely utilized to delineate creative instruction. The literature is limited and shares a fuzzy boundary with learner creativity. Arguably five contemporary studies focus on the teacher (Martin, 2002; Basom & Frase, 2004; Cheung, 2012; Rubenstein, McCoach & Siegle, 2013; Zane, 2015). Existing knowledge is deficient for answering the research question.

NVivo was used to analyze the articles and organize a conceptual framework based on implied relationships. Process coding was appropriated to map the relationships and develop the model (Saldana, 2016, p. 114). The resulting model (Figure 1.2) suggests that perception of environment determines processes and outcomes. This implores relevance to the Theory of Creative Affordances (Glăveanu, 2012). The theory reinforces that perceived possibilities of the environment that can “inspire” creative behavior.

Figure 1.1. Four-P Constructs of Instructional Creativity Indicated by the Literature
Figure 1.2. Four-P Framework of Instructional Creativity Suggested by the Literature

DISCOVERY

This study aims to know how the environment relates to creative instruction. Kafashpur et al. (2016) suggests that “Those people who are working within an environment are the ones best able to identify factors that affect their work.” (p. 106). Thus, talking to creative teachers optimize discovery. A private Midwest elementary school was selected as the sample school for its creative reputation.

Table 1.1. Overview of Data Collection Methods

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<tr>
<th>Approach</th>
<th>Collection Method</th>
<th>Type of Data</th>
<th>Purpose</th>
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<tbody>
<tr>
<td>Quantitative Qualitative</td>
<td>Creative Index Interview (classroom)</td>
<td>Numerical / Scale Descriptive</td>
<td>Identify participants for interview (a selection tool)</td>
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<td></td>
<td>Interview (walking)</td>
<td>Descriptive</td>
<td>Gather perceptions about creative teaching experiences</td>
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<td></td>
<td>Gather perceptions about creative experiences + environment</td>
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A multi-phase approach was designed for discovery (Table 1.1). The Abbreviated Torrance Test for Adults (Goff, 2002) was used to determine the creative ability of the participants. The ATTA is reliable (Auzmendi, Villa &
Abedi, 1996), valid (Althuizen et al., 2010), and an effective tool for screening creative ability (Cramond et al., 2005). Of 18 participants, nine scored a CI of >5 (high or substantial) and were selected. Three piloted the interview protocols, and, and six participated in formal data collection.

Individual, semi-structured, responsive interviews included sitting down (in classroom), and walking (throughout building). Participants were asked to describe creatively experiences and asked about the importance of the environment. The walking interview utilized the building to promote the generation of descriptive data prompted by open-ended inquiries about the places they experienced creative teaching and the inverse (feeling limited).

Participants were randomly name T01 through T06 for tracking, and NVivo was used to conduct an inductive analysis of the data. Passages were interpreted and coded for contextual importance, noted for frequency and commonality, and used to summarize findings.

**FINDINGS**

**Finding 1: The Physical Environment Relates to Creative Instruction**

**Furniture and Interior Finishes**

**Personalization.** Creative instructors feel creatively enabled through personalization. T03 said that “without personalization,” it would be difficult to do their job in a creative way. T06 identified a small space in their classroom as creatively inspiring to them because they had defined it with personal rugs, shelving, lighting, and other artifacts and said, “I’m always creating… I love just making everything for the classroom.” They added,

> I think some teachers are happy kind of purchasing things from the teacher store and putting on the wall and calling it a day, and I like making my own… If you make it yourself, it's more personal... I think that when you care about what you made then that care radiates…Then the environment shows that to the kids and to anyone else that comes in...

**Organization.** Creative instructors feel creatively enabled through organization. Several participants shared stories how organization supports a “very creative and inviting space.” T01 shared that when a space is “cluttered,” it is “stressful.” When asked to identify a space in the building that they felt creatively limited, they zeroed in on one for its “chaos” and “visual distractions.” When asked to talk more, they shared,

> For me, [creativity is] very related. I feel like when my classroom is messy and there's just stuff all over the place [...] It's harder for me to plan creatively because I'm distracted by all the mess… I can't get into a space where I can’t be a creative teacher.

**Flexibility.** Creative teachers feel enabled by reconfiguring things. When asked to share a creative aspect of their space, T05 blurted the single word, “Flexibility.” T03 shared described their room as “very fluid” and “made to do big moving things” because its flexibility. T04 shared how “remodeling” their environment is creatively enabling because they simply like to “change it up.” They shared,

> I feel like a creative environment has to be flexible… I might just come to school one day and say... ‘I want to set up [an activity] in the middle,’ and then I’d put all the tables kind of surrounding that. Or kids stand up, and I push all the tables so that everybody can be facing that way.

**Displayed Thinking.** Creative teachers feel enabled by exhibited work and ideas. When surfaces are limited, they’ll “Economiz[e] on the space that's available.” (T04). Several participants identified gallery-like spaces on shelves and tables as creatively enabling. T03 identified a high ceiling with hanging visual. T02 talked about a repository of autonomous student works on a wall. In discussion they asked and answered the question, “Would the kids do this kind of writing if there wasn't a place to put it?... Maybe they wouldn't have done it if not for the space.”
Building Architecture

**Proportion of Space.** Building architecture generally limits the size and height of interior rooms. Creative teachers associate proportions of space to creative instruction. T02 shared how a big space with windows “could always turn into a beautiful creative space for me.” Similarly, T01 shared, “I feel like with all the open space, you have more room to be creative... it gives you the room to do whatever you want.”

**Connections Outside the Building.** Building architecture informs the location of exterior openings, natural light, and access to outside. When asked to share the most creatively inspirational space in the building, T05 identified one outside the building, emphasizing, “It's right next door to my classroom.” Creative teachers feel creatively enabled by spaces with “lot of windows and wonderful sunshine” (T04). T02 shared how outsides views and windows relate to their creativity, saying,

> Coming here, this room with windows on three sides and the sort of accessibility to nature, just seeing it. And we'll see hawks, and squirrels, and woodpeckers in our trees. And the changing of the seasons is so right there, the glow in the autumn when it's yellow right out our window. I mean, and the weather and the air. We open the windows, and just that-- to me, that is really inspiring. And if you want to read, or write, or draw, or be creative, to have that just in your field of vision is so-- I need that to be creative.

**Finding 2: The Socio-Organizational Environment Relates to Creative Instruction**

**Meaningful Interactions with Colleagues.** Professional interactions are important to creative teaching. Colleagues are a soundboard for creative ideas, source of feedback, and instrumental in actualizing creative ideas. T04 described exchanges with colleagues as an “important part of the whole experience” of creative teaching. T03 shared how colleagues help you, “think about things in different ways.” Creative instructors are inspired just by seeing the creative activities of colleagues. T02 shared, “…I'll walk by the classroom next door and they'll be working on some creative project. I'll see something up on the screen...or I'll see something that's hanging on their walls... In a blip of time, you can get a feeling for that's something really creative and cool.”

**Meaningful Relationships with Learners.** Creative instructors feel creatively enabled by student-teacher relationships. T04 illustrated this by randomly remarking in interview, “What's interesting is we're talking about my creativity and part of it is student creativity and fostering that, and then part of it is my feeling that I'm being creative... I think there's a lot of crossover.” T02 shared, “I feel like so much of my creativity comes from the individual relationships and knowing your kids.” They described how knowing their students made them feel “more authentic, and more creative.”

**Individual Control Over and Ownership of Space.** Creative instructors often described how individual occupancy and control over spaces affect creative experiences. T02 described feeling creatively limited by a shared space that lacked this quality.

> ... it doesn’t feel like my space as much. It’s not my classroom or my teaching partner’s. It feels like a little bit like it belongs to another.... It doesn’t really because it’s sort of everyone’s. It’s shared. It’s just sort of like a place you get in and get out. [...] You just kind of don’t want to spend a lot of time and it doesn’t feel as inspiring and creative.

T04 also shared insight about similar limitations when visiting a space on the walking interview. They said, “I feel like this a great space, but I feel it could be more conducive to creative inspiration, more inspirational.” When asked to talk more about their experience teaching in the space, they said, “Because other teachers used the space as well, I had to be pretty organized... I couldn't just take over... That would tend to put a little bit of [a] buffer on the creativity.”

**Finding 3: Attributes of the Environment that Relate to Creative Instruction are Interrelated**
Attributes of the environment were rarely singled as exclusively relevant to creative instruction. T04 illustrated this when they struggled to identify a creative aspect of their classroom, saying, “I can't just take any one thing out of this room and say it's the thing. It's the whole environment.” Zeroing in on one attribute was mutually difficult among participants.

Displayed thinking encourages meaningful relationships, interactions, and gives teachers instructional freedom. Exhibits in hallways result in praise, and sometimes facilitate dialogue and the exchange of instructional ideas. T01 shared, “...when you do a lesson and you immediately put it up on your bulletin board [another] teacher will walk by and be like, 'That's really cool. Tell me more about that.'” T04 described how displayed thinking can span a network of connections and “just kind of [take] off.”

Ownership and control over spaces spawn dynamic interactions between colleagues. T04 described how the overlap supports positive team-teaching experiences. However, T01 described how it can cause conflict over personalization of space. T05 illustrated how attributes of the environment are interrelated in complex ways. When asked what they need to work creativity, they shared,

> I like to work with people, but I like it quiet, too. So, there are rules of working together... You can have your earbuds in if you want, or whatever, doing the work, but having wide-open spaces with not too much clutter. I've tried to get rid of my desk, but I try to hide it... But then there's the teaching environment, and that's what it looks like, that's how you talk, that's your management. And then there's routines, like how do you structure your day. There's just so many different parts of teaching...You're never done learning, and you're never done getting new ideas.

**Finding 4: The Organizational Environment Negotiates Instructionally Creative Behavior**

The first interview question asked participants to share what creative teaching means to them. The answers provided a broad range of perceptions related to instructional autonomy and professional trust. T01 described creative instruction as the “freedom and the flexibility to make independent decisions.” T02 shared, “I've experienced really, really vastly different kinds of teaching environments. And it can totally dictate how much creativity is allowed, is promoted, is supported...” T03 described a creatively enabling environment as “a people environment more than a space. I could do what I do and be what I am anywhere.”

Most of the participants shared creatively limiting experiences while teaching at other schools, providing rich accounts of how prescribed and scheduled delivery of content and curriculum are a major creative barrier. T02 shared,

> ... the teaching felt less and less creative and less and less about teachers' own sort of personal interests and abilities and artistry, and more about really truly becoming more prescribed in terms of every teacher, almost to the point of being scripted. [...] it was feeling very controlled by administration. Almost like you were being watched a little bit, and if you weren't doing it the way it was prescribed... if you couldn't show or prove that what you were doing at the moment if anyone walked in your room...... you were kind of busted and in trouble... So, you almost felt like you had to sneak like, "Let's make a snowman, or something” like... the individual creativity was being squelched... [it] felt really constrictive.”

Creative instructors thrive in a supportive organizational environment, despite physical conditions. T02 shares, “There's the inspiring, and the beautiful. But we will do it, despite that... And sometimes you're given a really crappy space. Or a really uninspiring, ugly, too small, dingy space. But you're still going to try to rise above that.

**DISCUSSION**

This study was designed to learn how the environment relates to creative instruction. Several conclusions were reached as a result.
Schools are Workplaces that can Affect Creative Instruction. There are similarities between the attributes of the environment that emerged from this study and those from workplace creativity research. The similarities are rousing because they offer explanations that the related literature in education does not. McCoy & Evans (2002) found that spatial elements enhance the “creative potential” of a workplace space predict creative performance, and include visual details, views to nature, and social interactions. Kristensen (2004) found that a creative process is supported non-fixed furnishings, large surfaces, collaborating, and an overall sense of adaptability. McCoy (2005) revealed that the proximity to resources, space planning and layout, circulation patterns, surfaces that allow for personalization and displayed thinking, sizeable work areas, adaptability of space, and visual access to others relate to creative production. Dul & Ceylan (2011) compiled a list of elements of the work environment that are “possibly” related to the workplace creativity and include teamwork, autonomy, furniture, privacy, views to nature, and daylight. Marten’s (2011) investigation of the physical workplace concluded that open space, featuring visual work, and people interactions are important attributes of a creative workplace culture. The knowledge coincides with the findings of this study and supports that creative instructors are enabled and inspired by their environment in the same way other creative professionals are.

Creative Instruction is an Environment Dependent System. This study suggests that the attributes that enable and inspire instructional creativity part of a complex system. The Environment Model of Creative Instruction (Figure 1.3) illustrates that creative instruction is environment-dependent in which the organizational environment plays a unique role. The model was developed by interpreting and synthesizing the findings of this study. Figure 1.3 has exciting similarities to Figure 1.1 (model derived from the related literature) that suggest that the insight gained through this study aligns well with contemporary knowledge. Both models position the environment as an intervening variable. In Figure 1.3, the organizational environment is a creative gatekeeper that mediates creative actions and behavior; i.e. engage socially, manage resources, utilize and manipulate resources.

Figure 1.3 Environment Model of Creative Instruction
The idea that an environment can “block” creativity is not unique. Dul, Ceylan & Jaspar (2011) suggest that impact of the physical workplace on creativity is small and “secondary” to the organizational environment. Dul (2009) found that the non-physical environment has a mediating impact on creative employees (p. 19-20). Creative instructors experience the same pressures, and do not respond creatively to an environment that prescribes controls.

**The Environment has an Important Relationship with Creative Instruction.** Participants were asked to identify places in the building where they experienced feeling creatively limited or inspired. It was not surprising to learn that creative instructors perceive personalizing, organizing, and reconfiguring as creatively enabling. Several sources suggest that teachers use these strategies to supporting learner creativity (Martin, 2002), design and control their environment (Martin, 2002), and ultimately feel personally empowered by doing so (Ford, 2016). Altering the “nature of space” is described by Jeffrey (2006) as an instructionally creative use of space.

The importance of displayed thinking to creative instruction was surprising. Often, such attributes were identified, but not talked about in a material or tectonic sense. They were represented by omission. Participants identified surfaces that afford adhering, hanging, taping, tacking, etc. As an extreme example of this, one participant even identified a creative moment where they allowed a visiting profession to paint directly on their classroom wall. Most related literature about this is non-educational and suggest that adaptable display surfaces support creative process (Kristensen, 2004; Martens, 2011), and that the materiality of such surfaces can impact creative outcomes (Kafashpour & Gharibpour, 2016).

It was not surprising that creative instructors perceived large spaces with high ceilings and natural light as creatively enabling. Ample literature suggests that all teachers desire it and are commonly features in 21st Century Schools (Lembo, Mecella & Vacca, 2013; Ford, 2016). Also, research across domains support a positive connection between creativity and nature (Plambech & Van Den Bosch, 2015).

It was not surprising that creative instructors emphasized the importance of people connections to their creativity. Lilly & Bramwell-Rejskind (2003) suggest that meaningful relationships are an integral aspect of fostering a “dynamic process of creative teaching.” (p. 18). That process engages instructional reflection and self-awareness that leads to improving professional activity.

It was not surprising that space ownership and control can meddle with creative instruction. Jeffrey (2006) suggests that teaching innovations result when they are “owned” by the teacher… that the “teacher has a certain autonomy and control for the process.” (p. 3). They emphasize “relevance, control, and innovation” as creative teaching contexts.

**RECOMMENDATIONS**

Salient attributes of the environment matter to creative instruction. These attributes are remarkably similar to workplace creativity and yield exciting trajectories for further study. The attributes are only somewhat similar to those that relate to learner creativity. Future studies might examine the overlap of each in more detail to discern the differences. This study should be replicated in additional environments; new and old construction and varying designs. The “look” and “feel” of school architecture has shifted in lieu of 21st Century Learning. What might measurably creative instructors tell us about those environments? Do attributes that relate to creativity cross pollinate the same in different educational environments? Last, this is the only known study that has used a valid measurement of creativity to explore the relationship of the environment to creative instruction. This is a rich area of research that should be continued. Creative ability is a flexible skill. Thus, future studies should also aim to understand how changes in creative ability relates to the perception of the environment.

Ford (2016) suggests that more research is needed to know what will support 21st century teaching. This study provides evidence that schools that support creative instruction go far beyond bricks and mortar, and that the creative impact of the environment exceeds designed, architectural aspects. The findings presented here make valuable contributions towards broaden perspectives about conceptualizing, planning, designing, funding, and building educational facilities that optimize both learner and instructor creativity.
REFERENCES


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