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Considering the Long-Term Transformative Impact of Creativity Training on the Work and Lives of Teachers[AQ: 1]

Jennifer Groman[1] [GQ: 1]

Abstract

The purpose of this study is to examine teacher perceptions of the long-term transformative impact of Piirto's Creativity Model and personal creativity exploration on teachers. Creativity training has been part of Ashland University's Talent Development program for over 20 years using Piirto's creativity model. The course encompasses multiple models of creativity, including the Torrance Incubation Model and Creative Problem Solving; however, significant time focuses on teachers' own creativity through activities such as thoughtlogs, a Meditation Day field trip, and a personal creativity project. This study examines alumni perceptions of personal creativity exploration on their teaching lives. Data were collected through surveys and interviews. Questions include course memories, perception of the course's impact on teaching and personal transformation. Results show that the course models community and group trust, and teachers increased understanding and valuing of their own creativity and that of students.[AQ: 2]

Keywords

creativity training, Piirto creativity model, teachers, transformative

The purpose of this study is to determine teacher perceptions of the long-term transformative impact of Piirto's Creativity Model (Piirto, 1992, 1998, 2007, 2011, 2016) and personal creativity exploration on teachers' work and lives. Beghetto (2014) saw the teaching of creativity as almost exclusively carried by gifted education, though he

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believed creativity development should be shared by all. Creativity training has been part of Ashland University's graduate program in Talent Development for over 20 years. Jane Piirto, now retired, led the gifted endorsement program for 28 years. She taught and used her own model, based on her research (Piirto, 1992). A published novelist and poet, Piirto trained graduate students (who were working teachers) in the use of research-based creativity models in the classroom. A significant amount of course time was also dedicated to an exploration of teachers' own creativity through activities such as thoughtlogs, a Meditation Day field trip, and a personal creativity project. Entering into creativity studies as a working creative, Piirto's premise was that to support creativity in K-12 students, one should have experienced the creative process in a personal way (Piirto, 2008), or "in a transformational way" (Piirto, 2011, p. xi), with which many researchers agree (Al-Dababneh & Al-Zboon, 2017; Davies et al., 2013; de Alencar, 1991; Runco & Johnson, 2002; Selkrig & Keamy, 2017).

The course was one in a series of six courses that prepared teachers for a teaching endorsement as a Gifted Intervention Specialist in Ohio, and which could also be used as a cognate for a Masters in Talent Development Education (TDE). Affectionately called The Creativity Course, it still provides an opportunity for teachers to learn about the identification protocol for Creative Thinking Ability in Ohio and offers a wide variety of readings and activities on various models, and research-based interpretations of creativity theory. These readings and models show students the wider field of creativity studies. It is both theoretical and practical in nature, giving graduate students a broad survey of the field of creativity studies.

This article begins by defining and contextualizing the terms transformative impact and transformation as used here. This is followed by a short literature summary that examines various models of creativity training for teachers. A synopsis of Piirto's work in the field of creativity provides the foundation for a brief overview of her model of creativity training. A description of research methods follows, survey and interview results are reviewed and themes examined. The article concludes with a discussion of findings and recommendations for the field.

Transformative Impact and Transformation

Transformative learning theory is based on the work of Jack Mezirow (1978, 2009), who made it his life's work to identify processes in adult learning that may lead to personal, even societal transformation. His research "identified ten phases of learning that become clarified in the transformative process" (Mezirow, 2009, p. 19). The idea of transformative learning as outlined by Mezirow involves a series of stages whereby an individual shifts his or her perspective to arrive at a new and deeper level of understanding (Gouthro, 2018, p. 1018). These stages begin with a "disorienting dilemma" (Mezirow, 2009, p. 19), an event, person, or idea that does not fit into the individual's pre-existing meaning structure. This elicits an emotional response of guilt, shame, or fear. This dilemma and subsequent emotions are the foundation of transformative learning, because without the emotional impact of a dissonant idea, individuals do not experience true learning. As long as the world fits into our established understanding, we do not tend to engage in transformative learning.[AQ: 3]

Mezirow (2009) recognized the connections between Jungian psychology and transformative learning theory. Jungian psychologists use the term individuation as a movement toward wholeness that includes the appearance of difficulties, struggles, adversities, and their subsequent resolutions (Jung, 1964; Vaughan, 2013). It is a fact that challenges and difficulties grow our personal and professional identities (Daniels, 2005; Keltchtermans, 2009; Meijer, 2011; Rolls & Plauborg, 2009). The term transformation is a noun that names the act of transforming or changing. Transformative, an adjective, describes something that drives the process of individuation (Mezirow, 2009). Transformative learning is the process through which transformation happens.[AQ: 4][AQ: 5][AQ: 6][AQ: 7]

In seeking the transformative impact of creativity training, specifically the Piirto model of creativity training, on the lives of teachers, this study is an exploration into how the model elicits disorienting dilemmas, allows for critical reflection, and ultimately stimulates a shift in understanding of the world and students themselves.

Creativity Training for Teachers

Creativity models and training programs are everywhere. Some creativity systems that have been widely used in schools incorporate structural models such as Six Thinking Hats (deBono, 1978) and the Structure of the Intellect (Meeker, 1973), while others are interdisciplinary models such as *Creating More Creative People* (Crabbe & Betts, 1990), *Visual Thinking* (Eberle, 1982), *Drawing on the Right Side of the Brain* (Edwards, 1979). The most popular appear to be problem and solution finding and divergent thinking models such as those found in *Creativity in the Classroom* (Starko, 2018) and Creative Problem Solving (Parnes, 1981).

De Alencar (1991) suggests that teachers are uncertain about the meaning of the term *creativity*, which can be debilitating. In addition, teachers have a narrow view of creativity, they believe creativity is only available to a select few, they fear unexpected ideas, are more comfortable with one correct solution, and place emphasis on discipline and good behavior, perceiving creative children as more disruptive and less conforming (Al-Dababneh & Al-Zboon, 2017; de Alencar, 1991; Kettler et al., 2018; Li & Kaufman, 2014; Rico, 1983; Runco & Johnson, 2002; Selkrig & Keamy, 2017; Torrance & Safter, 1990; Treffinger et al., 2006). In fact, Mullet et al. (2016) determined that researchers and teachers have differing definitions of creativity and the nature of creative behaviors in students, and it is difficult for teachers to identify and encouraging creativity in their classrooms.

Rose and Lin (1984) found that the effectiveness of creativity training is that it improves performance on divergent thinking tests in the area of originality. In a meta-analysis by Scott et al. (2004), creativity training had positive effects on problem-solving, (producing original solutions to problems), performance, (creative production), and attitude, responses, and "reactions to creative ideas" (p. 367). The most effective creativity training focused on the development of these skills, specifically problem finding, idea generation, and conceptual combination in the form of lecture styles and application activities. Abdulla and Cramond (2017), in a review of over 40 assessments used in creativity research, determined that teachers who are familiar with

definitions, views of, and measurement of creativity are better able to recognize and foster creativity in their students, with which Beghetto and Kaufman (2010) concur. Hosseini (2014) observed that creative teachers emphasized interpersonal relationships in a more student-centered classroom environment.

A number of sources discuss creativity training that integrates "encouragement of the teachers' own creativity" (de Alencar, 1991, p. 225). Teachers in de Alencar's study reported that the creativity training they received "increased awareness of their own creative abilities and of ways to use these abilities in their work" (p. 225). Selkrig and Keamy (2017) espouse a teacher's own creative learning as central to students' creative learning. They believe that the "notion of creative learning of teachers is largely overlooked in the discourse of teachers' professional learning" (p. 317). Sefton-Green et al. (2008) concur, but feel that while the term "creative learning" is imprecise, "it does stand for a set of values focused around developing individual potential and with an emphasis on authentic 'deep' educational experiences" (p. 12):

> One major change that we recommend be considered in further research is not necessarily coming up with a different regime for "creativity," but instead, ensuring that teacher's creative learning is named and legitimized. (Selkrig & Keamy, 2017, p. 326)

The Piirto Model of Creativity Training

The Piirto Model of Creativity Training can be traced to a 1978 article by a young Jane Piirto Navarre called "Intuition in the Creative Process" in *Gifted Child Quarterly.* More than 40 years later, Piirto has five published books on creativity, more than 40 journal articles on the topic of creativity, 11 literary books, and countless (encompassing ten pages of her Curriculum Vitae at last count) published poems. Piirto knows creativity from dual perspectives: the researcher and the creative producer. A short overview of the conceptual frame of the Piirto Creativity Model follows (Table 1), and vignettes of a few of the activities customarily used, as well as those I added as one of the artist-adjunct instructors (Table 2).

The integration of Piirto's own creative work is as much a part of the model's creation as her systematic exploration of hundreds of eminent creative producers in the various domains and fields, calling it "the creative process as creators practice it" (Piirto, 2009, p. 42). To fully grasp the power of the creativity model and its focus on experiential learning, it is important to understand how the model emerged from this work and from the zeitgeist of the time period. When Piirto entered the field of education of the gifted and talented, she was a working author: days filled with students, teaching plans, and chalkboard dust; nights and weekends writing creative literary works awaiting the letters of rejection or acceptance that are a writer's fear and joy. It was a bifurcated life—she separated her educator self from her artist self, as many creative individuals do (Piirto, 2011).

As Piirto began her creativity research, the Marland (1971) Report defined creativity as one of the six forms giftedness takes, and the *Torrance Tests of Creative Thinking* paper and pencil tests were being studied in their 22nd longitudinal year.

Table 1. The Piirto Model of Creativity Training Themes and Sub-Themes.

The Piirto model of creativity training theme	Sub-theme
Core Attitudes	Risk-Taking
	Naivete
	Self-Discipline
	Group Trust
	Tolerance for Ambiguity
	Feeding Back
Seven I's of the Creative Process	Imagery
	Imagination
	Intuition
	Insight
	Inspiration
	Incubation
	Improvisation
General Practices	1. The need for solitude;
	2. Creativity rituals;
	3. Meditation;
	4. Exercise, especially walking;
	5. The quest for silence;
	6. Synchronicity;
	7. Divergent production practice;
	8. Creativity salon;
	9. Creativity as the process of a life;
	10. Visiting and Appreciating (field trips)
Multiple aspects of the model toward personal creativity	Individual Creativity Project
	Scholarly Biography of a Creative Individual

Source. Adapted from Piirto (2011).

Csikszentmihalyi (1990) was studying peak performance, and a concept he would call "flow." In 1978 Joseph Renzulli's (1979) definition of giftedness included above average intelligence, task commitment, and—creativity. In 1986, Feldman and Goldsmith studied prodigies to understand creativity and its development. In 1994, Feldman et al. (1994) posited a developmental theory that true creativity is that creative contribution which transforms the field.**[AQ: 8]**

Bringing a natural interest in creativity to teaching, Piirto took training workshops in many of the cutting edge models of the time: Creative Problem Solving (CPS) Odyssey of the Mind (OM); and Future Problem Solving (FPS). She was an advanced trainer with Dr. Mary Meeker in her iteration of Guilford's Structure of the Intellect (SOI) model, which has as one of its components, divergent production.

By the time Piirto (1992) wrote *Understanding Those Who Create*, she determined that creativity was not a separate skill but was domain based. She found as she read

Table 2. The Piirto Creativity Model: Example Activities.

Theme or sub-theme	Activity description
Risk-Taking and Group Trust	*Creativity Monster*—This activity comes from Cameron's (2016) *The Artist's Way*. Students meditate *(Incubation)* on what keeps them from being their most creative self and create it from torn construction paper and glue. The feel and sound of ripping paper is cathartic, and we use the process of Feeding Back to discuss and support one another. This activity became central to my research on bullying among gifted students (Groman, 2019a).
	Feeding Back is, to me, the true crux of the Creativity Course's ability to create deep conversations and personal connections. It is essential that group trust be established for this to happen. I share and discuss the various prompts for feeding back. The work is placed in the center of the circle of students. Students first feed the artist with their reflections on the piece and its meaning to them. They are not to ask questions. This is a time for the artist to hear what the work says to individuals in the group. Piirto (2011) and Reynolds (1990) outline this process with suggestions for responding to creative work.
	After the group feeds the artist, the artist shares her meaning for the piece, often integrating the insightful comments from her peers.
Core Attitude of Self-Discipline	*Thoughtlog*—Students spend 10 min a day reflecting on creativity. Students might sketch, jot down ideas on the week's assignments, or creativity they notice in their world. This mirrors Julia Cameron's (2016) "Morning Pages".
The I of Imagery	*Sculpture and Fingerpainting*—Both activities use visual arts materials to respond after a short meditation (*Incubation*) session on a prompt. These images can be representational or completely abstract, and are read in the "Feeding Back" circle. I also use this process with preservice teachers (Groman, 2015).
Naivete	*The Raisin Meditation*—This is a traditional mindfulness meditation *(Incubation)* that cultivates an attitude of openness to experience. The slow, mindful, eating of two raisins using all of the senses allows students to slow down and focus on the moment.
	Up Close and Personal Sketches—Students choose a small item (postage stamp size) and simply sketch it on a larger scale, noticing details they would not see otherwise. These little sketches have the power to allow students to see an everyday item in a new way.
The I of Improvisation	*The Drum Circle*—I have an unusual array of percussion instruments like drums, shakers, bells and chimes. In a circle of students I talk about each instrument and give time to explore them: to play. Reticent at first *(Risk-Taking)*, they begin laughing and interacting with the instruments and one another, braver every minute. I introduce them to a drum circle, communicating, leading and following, the beginning, middle, and intuitive ending as it finishes in its unique way. I start a drum rhythm and watch the fun as they interact, concentrate, try new instruments midway through, and laugh their way toward an ending. Then I ask someone else to start the drumming. Over time teachers learn to let go of their fear *(Group Trust)* and discomfort with the instruments and truly enjoy the fun and musical conversation.

(continued)

Table 2. (continued)

Theme or sub-theme	Activity description
All Themes	*Biography of a Creative Individual*—Students apply the concepts of the Pyramid and the creativity model to a scholarly biography. They complete a chart integrating parts of the Pyramid and Creativity Model that apply to that individual. Students have studied such creatives as Michael Jackson, Steve Jobs, Thomas Jefferson, Frank Lloyd Wright, Robin Williams, and Prince. The presentations are a fascinating look at the concepts made real. *The Creativity Project and Salon* –Students are asked to reflect on their own creative expression that has been lost to the busy-ness of life and teaching, or an area that they have always wanted to explore. The only rule is that it cannot be directly related to lesson planning or teaching. The purpose is to give teachers, who tend to give their creativity away in the form of creative lesson planning and teaching, a chance to truly explore their personal creative expression. I have seen painting projects, poetry, dance and yoga forms, business plans, songs, and an ingenious "bucket list" mixing music, images, and creative writing. One student created new beer recipes, exploring the chemical reaction of the components, and we had a blind taste test. Students show how they have used aspects of the model and projects are shared in a Creativity Salon, like "the famous salons of Paris where artists, writers, musicians, and thinkers met to associate with each other" (Piirto, 2004, p. 442). The best Salons are those where we meet at someone's home (a requirement when we did beer-tasting!). Laughter and camaraderie, deep connection with one another, and support of our creative thoughts and ideas abound.
Supporting	*The Field Trip*—One required meeting is a Saturday Meditation Day. Students turn off their phones and concentrate on their own creative thinking, wellbeing, and growth. We start the day at a park to contemplate *(Incubation)* the inspiration of nature. We go next to a cemetery to contemplate inspiration from the dark side. We eat lunch together and enjoy conversation. We spend the afternoon at an art museum, meditating on beauty and the creativity of others. The visit to the art museum is structured. Students venture off on their own, silent and contemplative as they seek out a piece of art that spoke to them. They spend significant meditative time in front of this piece. They respond to the work using poetry, prose, sketches, etc. The group then takes a guided tour of the museum as each student becomes a docent for their piece of art. They share their reflections, insights, inspirations, writings, and emotional responses to the artwork.

biographies and memoirs of eminent adult creators that they "talked about their creative process in organic terms, describing interior processes that verged on the mystical," (Piirto, 2011, p. 4) rather than the modernist and linear views of creativity of "brainstorming, SCAMPERing, generating alternative solutions, or creative problem solving" (p. 3).

Creativity as Creators Practice It

Piirto's (2011) *Pyramid of Talent Development* frames Piirto's Creativity Model and appears in Supplemental Appendix A. The Pyramid "considers person, process, and product, as well as environmental factors" (Piirto, 2007, p. 38). The pyramid portion of the model outlines the inborn propensity of the talented individual and their foundational aspects. The base of the pyramid is the genetic aspect, followed by the emotional aspect or personality characteristics, then the cognitive aspect, or minimum cognitive ability in a domain, and specific talents in domains as the pyramid rises to its apex. Included as the peak of the pyramid is the Thorn, or motivation that makes that talent a Calling. It is often mysterious, but ever-present in eminent talented individuals. Around the pyramid are suns that represent various nurturing environmental aspects that can be strong or weak, including the Suns of Home, School, Community and Culture, Gender, and Chance. Piirto and her students read biographies of famous creative individuals, placing behaviors and events into the Pyramid of Talent Development. Piirto began to see common themes that she qualitatively organized into her creativity model. When I facilitate workshops on the model, I let her words make the introduction. She wrote,

> As I studied the creative processes of creators, I found no mention of the words creative problem-solving, fluency, flexibility, brainstorming, or elaboration in the essays, memoirs, biographies, and interviews of creators in various domains. The creative process as practiced by creative productive adults has engaged thinkers of the world from prehistoric times, but *none of them has described the creative process in the way that has been taught in schools for the past fifty years* [emphasis added]. (Piirto, 2011, p. 4)

Piirto found that eminent creative individuals have similar practices that can be divided into three themes, as shown in Table 1. They seem to have certain Core Attitudes toward the creative process, they experience what she calls the "Seven I's," and they engaged in certain practices. Piirto (2011) states,

> Not all creators use all of these techniques, but many creators use at least some of the techniques. Why can't people who want to be more creative, and people who teach people to be more creative try to duplicate, or imitate what the creative producers of works of art, science, invention, and music, say they do while they create? (p. 5)

What appears in Table 1 is a compilation of articles and book chapters, years of Piirto's syllabi from the graduate course, "Creativity for Teachers of the Talented."

The Piirto model is the framework for personal integration of the concepts and provides a springboard for integrating the concepts into the classroom, especially using the practical text, *Creativity for 21st Century Skills* (Piirto, 2011), which outlines ideas for teachers of all grades and content. Table 2 shows vignettes of example activities traditionally used in the course and others I have added to integrate my unique way of working as a teacher and creative producer. More activities are available elsewhere (Piirto, 2004, 2011, 2016)

While there are numerous references to Piirto's work in the literature, no studies of the model beyond Piirto's own writing are available at the time of this writing. A comprehensive review of Piirto's Pyramid of Talent Development appears in *Developing creativity in the classroom* as an influential theory of creativity (Kettler et al., 2018), but does not delve into Piirto's creativity theory as outlined above. In a short discussion of Piirto's writings on creativity, a book review in 2003 by the Davidson Institute (n.d.) on Piirto's *Understanding Creativity* maintains the work as "a valuable addition to the field of education and holds great promise for those interested in fostering the optimal development of young people" (para. 8). Omdahl and Graefe (2018) reiterate that through increased knowledge of creativity theories and definitions and participation in Piirto's learning activities "teachers are likely to experience a personal transformation regarding their creative self-efficacy" (p. 213). To this I feel compelled to add that while some teachers may experience personal transformation, not all do so.

What I have learned from taking the creativity course, teaching it in the university, and facilitating workshops throughout the state, is that this style of creativity training is relatively unique. It has a spiritual and mystical element that connects it to creativity in its deepest and most personal sense, "the desire for spiritual unity, [for] when people describe their creative process, they often get dreamy and intense" (Piirto, 2011, p. 4). These exercises take the unknown processes of creativity that are often feared by teachers and allow them to experience it in a personal way, as I did more than 20 years ago. My initial experience with the Piirto Creativity Model is significant to this study as it is the impetus for my study of creativity as transformational for teachers. It also reveals the source of my own attitudinal bias as I embarked on the research process.

My Experience With the Piirto Creativity Model

My first day in the creativity class was in the middle of a hot Ohio summer. It was a short intensive course that met 3 hr a day for 3 weeks. I taught summer school all morning, went to class, and spent the evenings with my grandmother who was in the final stages of cancer, sharing caregiving duties with my mother and aunt. On the evening of the second day of the course my grandmother succumbed. My instructor handed out blocks of red clay that day to take home. I was in a mire of emotions and exhaustion. However, according to my thoughtlog from that time, "from the minute the assignment was given I knew—I saw—my sculpture." I did not know much about this form of creativity, but I immediately and intuitively knew that I could use this to process and release many painful emotions.

My creativity project for that summer course was a song called "Away Again," my first original song since high school. I had stopped writing music because of criticism from someone I deeply admired. I simply stopped. "Away Again" told the story of my creative process, and the challenges of losing myself to it. From my thoughtlog in 1996:

You know the writing's hard,

The spirit may give in,

I've got to get Away Again.

Indeed, that course was transformative. I decided to write music (to "Get Away") again. I learned to play the guitar. Since I took this course, I have written notebooks of songs, I have self-produced four CDs, three of original music (Allen, 2000, 2002; Allen Groman, 2010) and one of big band music (Allen, 1998). As a working musician and creative producer, I truly see the aspects of Piirto's Creativity Model in my life and my work and it enriches that work every day. Like Piirto, I enter the work after experiencing the concepts firsthand. However, also like Piirto, I understand that most teachers do not enter the world of creativity with the same experiential knowledge. In addition, my prior experience with creativity and my firsthand and, admittedly, emotional connection to the concepts in the model, I realized it was vital that I recognize and temper my bias throughout the research process. Resonating with these thoughts, I plunged into an exploration of Piirto's model from the voices of those who know it best: program alumni.[AQ: 9]

Method

Purpose

Through this study I examine teacher perceptions of the long-term transformative impact of Piirto's Creativity Model and personal creativity exploration on teachers' work and lives.

Participants and Sampling

After obtaining Human Subjects Review Board approval, I began collecting my sample. The full population included alumni of the creativity course, I contacted the University alumni office, which provided contact information for 310 students who had completed the course after 2005 (prior to 2005, and when I took the course in 1997, the course combined creativity and social/emotional needs of the gifted). In addition, I contacted Dr. Jane Piirto to gain access to her student records, she provided 58 names, with many repetitions from the alumni list. In addition, I used my own records of previous students and posted a request for students on my social media

pages. Considering out-of-date email addresses and those that bounced back, 138 alumni were contacted with an introduction and invitation to complete the survey, which includes a request for interview participants. The online survey consisted of 19 short answer questions ($N = 17$), which appears in Supplemental Appendix B. Interviews were also solicited from this survey conducted ($N = 12$), and the 10 interview questions appear in Supplemental Appendix C. Surveys and interviews started with general context questions (demographics, their position, who they had as their instructor for the creativity course and when they took the course), then asked participants to share memories of the course, and ended with questions about the long-term impact of the course on their teaching and personal lives.

Nine interview participants emerged from the survey request for interview participants. Three more interviewees contacted me via email after completing the survey to express an interest in the project. Five of the interview subjects had taken the creativity course from Piirto, the remaining seven had taken it from me. Interviews ranged from 18 to 47 min, with an average of 28 min long, and occurred over a 3-week period in March, 2019.

In addition to the surveys and interviews of student alumni of the creativity course, I also interviewed Piirto in to get a few memories from her experience creating the model and teaching the course, and to establish validation of the themes.

Data Collection

Responses to the survey questions were collected through a Google Form, which may be sorted by participant as well as by question. As for interviewees, after setting up an appointment to perform the interview, I mailed interviewees an informed consent document with the interview questions. Eleven phone interviews were conducted and recorded with permission. Two interviewees emailed responses to me, and one of those agreed to a phone interview as well. One interviewee only replied via written responses to the questions, which I included as interview data.

During the recorded interviews, I took notes of major points and phrases by question in real time, and I timestamped each question in my notes so I could return to it in the audio. Within a week of the conversation, I transcribed each interview, removing personal conversation and unrelated discussions as one way of reducing bias in my analysis of the interview transcriptions.

Data Analysis: Surveys

Survey questions one through six (Section I) request demographic and population data. These were analyzed with simple percentages by demograph, district type, role in the district, and time in the profession. The final question in this section requested information as to when the course was taken and the instructor's name.

In section "Methods," survey questions seven through 14 allow participants to recall memories from the course and reflect on its impact on them personally and professionally. These responses reveal experiences and stories. Using content analysis, I

did a focused reading of the survey responses by question, rereading several times, initially to become familiar with comments and then to begin to discern themes and outliers. Throughout all of the data analysis and coding I was sensitive to and started with an a priori code for personal transformation (phrases such as "it changed me as a person") and teaching transformation (phrases such as "I've shifted some of my student questioning" or "I am more purposeful"), otherwise I noted themes as they emerged. As I noted specific concepts and ideas, I assigned numerical or alphabetic codes as ideas revealed themselves. I created a chart with columns for each unique idea and tabulated recurrences of the ideas. Related ideas were combined as I deemed appropriate. For example, survey question nine asks about the impact of the course on personal creativity. The response "it allowed me to honor my own creativity" and "I am more comfortable with my own creativity" were both tallied under the same theme.

Survey question 14 requested further comments and provided a number of interesting participant quotes to include here. Question 15 asked participants to rate the creativity course in comparison to other gifted courses in the sequence, responses were rendered as a pie chart to compare the various courses and their impact. Question 16, 17, and 18, characteristics of creative individuals, and two questions from a previous research project on creativity, "I am creative" and "My students are creative" gave me comparative responses to previous research survey I distributed throughout general school personnel in Ohio as to their creative self-concept and its correlation to their perception of student creativity (Author, 2019b). The simple pie-chart analysis of Questions 17 and 18 was not intended for inclusion in this research article; however, an interesting connection between alumni responses and general school population responses in my earlier survey motivated me to include a quick comparison of the two populations at the close of this study/paper. Survey question 19 requested volunteers for interviews.

Data analysis: Interviews

Interview questions one through five establish consent and draw out contextual information. Questions six through 10 ask specific questions about the creativity course itself. I read the transcript of interview responses to these questions three times to become comfortable with the comments and to get a sense of the context for each individual. I established pseudonyms for each interviewee and did three focused readings of the interview responses by question. As with the survey responses, I was sensitive to and started with an a priori code for personal transformation and teaching transformation, otherwise I simply noted themes as they emerged. As I gleaned specific concepts and ideas, I assigned numerical or alphabetic codes (alternating by question) as ideas revealed themselves. For each question I created a chart with columns for each unique idea, and tabulated recurrences of the ideas. Related ideas were combined as appropriate. For example, interview question eight asks respondents how exploring their creativity impacted teaching. The theme of "openness to experience," was combined with similar responses, such as "the ability to relinquish control." I was looking for semantic themes as well as latent connections to the themes. For example,

a semantic connection to a theme of vulnerability comes from Mary, "you have to tap into your vulnerable side," and a latent connection to the same theme can be seen in Sarah's response: "you know teachers who cannot allow anything out of the box, they're afraid of losing control . . . eventually you grow to a place where the fear isn't in charge anymore."

Data Analysis: Comparing Survey and Interview Data

The survey and interview data are presented together because of the similarity of the themes within each question type. To determine an organizing structure for presenting survey and interview data side by side, my guiding question was: How is interview data unique from the survey data? I determined that the depth of response was the primary difference—the interview data provided strong personal connections and stories for each of three main areas: memories from the course; impact of the course on teaching life; and impact of the course on personal life. For these three areas, survey and interview data are presented together, as similar themes arose, and allowing stories from the interviews to illustrate points of theme. The interviews also allowed me to follow up on the concept of the transformative effect of the course, and characteristics of those who may glean more transformative effect than others. These two areas were not incorporated into the survey data and stand alone.

Bias

Recognizing and moderating bias in all phases of the research process is imperative for good research. I entered into this research project with a bias because of my personal experience with Piirto's model of creativity. Consequently, it was important that I keep that bias in check as I created questions and analyzed responses.

I used content analysis for qualitative responses to survey and interview questions. Reflecting on my own bias and how it might impact this study, I used a foundational creativity theory technique from Piirto's model: the thoughtlog. I am a consummate "journaler," which emerged from my experience with the creativity "thoughtlog." Writing in a journal—on both personal and professional matters—has become a daily routine. As I entered into this project and worked through the structure of my research protocol and questions, I also self-reflected on my own experiences and their impact on my study, the questions I asked, and how I analyzed the information I gathered. It was in these reflections I determined, among other things, that I should keep the term "transformational" out of my research questions (except one of the final interview questions), to allow participants to respond without that suggestive word.

Throughout my research and my data analysis, these daily journals acted as research memos, where I summarized the day's work, reflected on emerging themes, unexpected and surprising responses, and those participant responses that truly taught me something new about the topic. Hesse-Biber and Leavy (2011) view memo writing as a way of "diving in and out of the data" (p. 236). I used my research journal as way of ending each analysis session and reread them at the beginning of the next period of

analysis to ease the transition between each and as a reminder to keep biases in check.[AQ: 10]

Results

Of the 17 survey responses, 53% had been in education between 10 and 20 years, 35% had been in the field more than 21 years; 77% of respondents held a Gifted Intervention Specialist endorsement in Ohio, 6% did not, and for 17% this was not applicable. Of the 17 respondents five were middle or high school grades educators, four were pre-K to grade 3 teachers, one taught at the university level, three were coordinators, and four defined themselves as "other." Most respondents (59%) were from suburban areas, and most from public school (71%).

Most survey respondents (60%) took the course in 2017–2018, while 12% took the course in the 1990s, with the rest as singletons in various years in the early 2000. Sixty percent of respondents had me as an instructor, and 40% had Dr. Piirto. It would appear that most respondents emerged from the more recent contact data I had in my files, as I was the only instructor for the course in 2017–2018. It could be construed that many email addresses from the alumni association on campus as well as older information from Dr. Piirto may have been out of date. Teachers who gain GIS endorsement may change districts and/or positions, making it difficult to keep this information current. Upon separation from the university the alumni association removes alumni email accounts from the system, rendering university email addresses to contact alumni useless.

All interviewees were in the education field, and all but one (a university journalism professor) were currently or had been in K-12 education. I asked where they were in their lives when they took the creativity course. Barbara (pseudonyms were assigned to each interviewee) had been dealing with hospice care in her home and recent death of her mother, Karla was in the midst of infertility issues and heartbreak, Darren was an undergraduate journalism major with a minor in creative writing, attracted by the word "creative" in the course title. The rest were in the middle of teaching, raising children, and caring for families or college-age children.

The themes presented here are organized by frequency of occurrence. All research participants are called "students" throughout. Survey respondents are called "respondents." Interview participants are designated with "interviewee" or a pseudonym.

Importance of the Meditation Day Field Trip and Sense of Community

Almost all alumni commented on the field trip, most remembered the creativity project, and the thoughtlog. Connecting to these memories, many remarked on the deep sense of community they experienced. One survey respondent stated,

> The field trip day to the art museum and metropark were really memorable, but more importantly than the activities was the type of community that [the instructor] built with my peers. People shared very intimate parts of themselves as they explored their own creativity, and such vulnerability only occurs in a safe place.

Core attitudes of risk-taking and group trust are evident in this survey respondent: "Sharing creatively in a group like this provides us with both vulnerability and safety." Another stated that sharing their writing with classmates made them "more confident to share it with a broader audience." Yet another thought that the class was "cool because it brought creative people all together," and started hanging out with a classmate who played lead guitar in a local band.

Another alumni published a poem about her experience in the cemetery on Meditation Day, illustrating the power of recognizing and honoring the dark side of life in the interest of creativity.

SEPARATED BY A FENCE

. . . The quiet dead
Lay peacefully keeping watch
Reveling in the crisp, fall breeze
As it tosses
radiant,
orange
leaves
Across their grassy blankets.

They cluck their tongues
In disapproval
As they see us losing sight of
soulful living
How can one lose six children . . .
Here in the juxtaposition
Of modern and archaic
The whispers drift
Across the hills
Seeking out a listening ear
To impart the knowledge of their lives—
Only to be drown out
By the blaring horn
Of passersby
Eager to be on their way. (Micko & Piirto, 2017)

Impact on Personal Life

One survey respondent stated that the course had no impact on their personal life. All other respondents and interviewees spoke about very personal projects and realizations. Many spoke about honoring their own creativity or knowing themselves better. Interviewee Mary, who had a 20-something son with talent in music and was an emerging studio musician, stated that she felt validated as a parent supporting her children's creative exploration. Seven respondents continue creative work, including formal and self-study, scholarly work, painting, creative writing, and starting an art movement. One interviewee, Karla, wrote a series of stories as her creativity project (a "Story Slam") on her then-challenges with infertility. Now, after a miracle pregnancy, having delivered a healthy baby boy, she decided to compile more stories into a book to submit to a publisher. Another respondent replied,

> It [impacted me] emotionally. It didn't cause me to take up new hobbies and I didn't become more creative. It allowed me to honor my own creativity and felt seen. I was in turn able to honor my student's creativity and I do believe they feel more seen as well. ("Karla," Personal Communication, February 7, 2019)

Impact on Teaching Life

Many alumni stated that they value creativity in students much more and understand them better, especially those, as one survey respondent stated "who challenge the status quo." Another survey respondent wrote, "I not only understood my students better, I started to understand myself in a way I hadn't before. It changed how I taught." Interviewee Lori, a gifted coordinator who emailed her responses to the interview questions, spoke about starting a "Brain Break Lab" with

> art supplies, puzzles, coloring pages, clay. The kids love coming here and just "playing." On another level, I try to begin every PD session I facilitate with some aspect of creativity. I think it engages the teachers and promotes conversation about areas where they can be more creative in the classroom. ("Lori," Personal Communication, February 20, 2019)

A number of students discussed their increased openness to experience and the ability to relinquish control in the classroom. Interviewee Sarah, a middle grades science teacher and outdoor enthusiast, continues,

> I began to realize I could allow the students to create the outcomes. And by giving up that control they do so much better than if I had told them 'this is what you're supposed to do and how you're supposed to do it and let me know when you're finished, and I can check it off.' ("Sarah," Personal Communication, February 7, 2019)

Mary agreed and stated that in her kindergarten room "we see where the kids take us . . . I'm on a journey with them." Maddie, a gifted coordinator, stated in her interview, "It is an experience of faithfulness to the authentic experience of the moment."

She believed that when her colleagues come to her with a question or challenge, "I have more to offer them." She continued,

> [In our district] we also identify [for giftedness] in creativity. This model presents a very natural and appropriate answer to the teacher's question when they ask me, "well, what are we doing for them? And how are we doing it?" My sales pitch is that the use of these strategies is good teaching, no matter what. And it opens the children's minds. ("Mary," Personal Communication, February 7, 2019)

Transformational

I interviewed Piirto as I was finishing my interviews for this article, to gain insights into her creation of the model and the course, and to validate themes. "Divergent production is a lot of fun," she said,

> but they are not dealing with who you are inside. The exercises [in my model] are derived from biographical sources. They are not made up—I organized them, I did qualitative research, and studied the themes. And I have 21st century skills connected to every one of them. I have direct quotes from creators. (J. Piirto, Personal Communication, February 14, 2019)

The transformational nature of the course can be powerful, as I myself had experienced. Thus, I included an interview question asking alumni if they thought the course was transformational. A number of the individuals hesitated, one interviewee repeated the word "transformational" to herself, and the uncomfortable silence in another caused me to repeat my question. This word, it appears, has a powerful impact on people. Most alumni said that this course did indeed transform their lives.

Many of the interviewees talked about and survey respondents wrote about going through the same learning and risk-taking process that their own students go through. One survey respondent stated that the creativity project was a "big risk," another expounded, "I am not usually a risk-taker, so this helped on that level, but it also challenged me to think about how it felt to be a kid again." Sarah stated,

> In a lot of ways, I think I was the kid. I went through the process that she [Piirto] talks about. You go through the process that you want students to go through. Almost like heal thyself first, and then you can heal that kid. ("Sarah," Personal Communication, February 7, 2019)

This was echoed by Darren, who took the creativity class as an undergraduate elective: "The whole creativity project helped us get in touch with ourselves so our students can get in touch with themselves. Because you do need to know yourself before you can help others."

Charles was a retired high school foreign language teacher. He spoke of the desire to see colleagues find something they are passionate about. "See, that's all we want as a teacher," he said. "I don't care what you do, but just find what you love, find out that

you love it, just do it. Someone like that teaching kids is waaaayyyy happier and easier to be around." A number of interviewees spoke about taking the creativity course as fortuitous. One became so enthralled that she changed her major to gifted education. Barbara, a middle grades English teacher, was reeling from a recent loss,

> It helped me deal with the death of my mom. I didn't really have an outlet for coping any other way. Which is why I saw it was divine intervention that that class happened when it did. Because I don't think I would have been making myself write in a journal every night (laughs). ("Barbara," Personal Communication, February 19, 2019)

She continued "Working through writing poetry was helpful because I teach poetry. Thinking about the craft as I was working through it, thinking about the content and form, as well. It was helpful to my teaching" Karla, who struggled with infertility at the time of taking the course, said,

> When we went to the field trip, we were standing [in the art museum atrium], and I was still back and forth on what I wanted to do for my creativity project. I forgot how we got onto the subject, but the instructor said that art can heal. And I thought—I never considered this as an opportunity to process the negative things. I was just trying to think of something cute to do for a little creative project. Continuing my creativity project after the course, it definitely gave me [the knowledge that] art can heal. It was a great thing for me to work through a health issue in a creative way. I don't know that I would have come up with that without the class. ("Karla," Personal Communication, February 7, 2019)

Another theme of interest is that teachers appear to recognize and appreciate students who may not always respond to authority in a positive way, and those who daydream or are disorganized. One survey respondent stated that they improved how they allow student creativity in the classroom "to flow. I think this shows in my daily lessons, but also in my students' comfort in my classroom, especially those creative students who challenge the status quo and need their uniqueness to be accepted." This shows an intensified openness for the nontraditional and quirky student, and understanding of the student who may not always find acceptance in school.

Discussion

This study emerged from my own transformative experience with the course, which shifted my personal and professional philosophy (Groman, 2015). For this research, 12 interviews meet the necessary sample size to demonstrate recursivity according to Onwuegbuzie and Collins (2007), and several themes were corroborated by both the surveys and the interview responses.

Because of my personal experience with the creativity model, I recognize and acknowledge my inherent bias in my pursuit of former students with similar experiences. I avoided the use of "transformational" or "transformative" in the survey and interview questions, with the exception of the final interview question. My use of the word "transformative" in the final interview question felt necessary to directly address

my research question, which was to ascertain teacher perception of the transformative nature of the course. In retrospect, I recognize that my research question alone holds bias based on my transformative experience, a form of confirmation bias (Peters, 2020).

In addition, upon revisiting interview question three "Why did you volunteer for this interview?" I see responses that point overwhelmingly to the fact that interviewees participated because they felt a strong connection to me, to Piirto, or to the topic of creativity. I suspect that survey respondents had similar motivations. Ameliorating such bias in future research on the impact of the model will require me to carefully reconsider wording of questions and cross-check my coding and analysis of the responses with a colleague. Fully eliminating such bias may not be possible, or even desirable. But recognition and awareness of it as I move through the research process will continually remind me to critically address this bias.

With that in mind, emerging from these respondents is evidence of teachers' increased understanding and openness to their own creativity after firsthand experience with the model. De Alencar (1991) believes that teachers ignore their own creativity. I do not entirely agree. Teachers are extremely creative, but I believe teachers give away their creativity in problem solving in the classroom, writing lesson plans, and teaching students. In giving it away they are not experiencing creativity for expression and growth. The above themes from the data indicate that there was, indeed, a long-term personal effect on the teachers who took this course, stemming from "authentic deep educational experiences" (Sefton-Green et al., 2008, p. 12). The effect of the course on alumni's teaching lives can be witnessed in the increased understanding of and value they place on their creativity and that of their students.

Also apparent from these respondents are an increased openness to experience, the ability to give up control over outcomes and allow for creative exploration, and a new firsthand sensitivity to the inherent risk-taking required for creative work in a classroom. "Lee and Kemple (2014, as cited in Al-Dababneh & Al-Zboon, 2017) noted that teachers who are open to experience and have more creativity related experiences are more likely to espouse creativity fostering teaching styles" (p. 725). Risk-taking and vulnerability are inherent to creativity and the resilience required to persevere through perceived failure. Individuals "have to be willing not only to go out on a limb, but to leap, hop, and jitterbug on that limb" (Dubin, 2014, p. 124).**[AQ: 11]**

Considering three of Mezirow's (2009) states of transformation, did participation in the creativity course create a disorienting dilemma, critical reflection, and resulting shift in understanding? A few of the participants mentioned a new self-knowledge and seeing the world as a child (naivete), and two specifically talked about the healing nature of the activities. It is not apparent whether a disorienting dilemma was part of this new knowledge and healing, but critical reflection and shifts in understanding are indeed evident.

The theme of community has implications for 21st-century learners, especially for teachers returning to university for graduate coursework. Many university programs offering coursework in creativity studies for teachers of the talented have moved to fully online formats, in fact, only a handful of university talent development

endorsement programs in Ohio offer face-to-face options on a regular basis. Teachers exploring their own creativity with an eye toward improving their teaching need to feel a sense of community or togetherness as they do so. Even online programs can offer optional face-to-face sessions at the university site, an outdoor site (a park or nature preserve), or museum. As my own program moved online I continued to offer the Meditation Day as a daylong field trip together at a central location, as well as a personal Meditation Day, where students visit one of these sites on their own and spend a day with their own thoughts and reflections. Community sharing can also be quite effective online through discussion boards, video conferencing, and other technology platforms.

As I compared alumni data to another research project survey I am conducting on serving creatively gifted students in Ohio, I noticed an interesting trend. Of the 17 respondents to the alumni survey, 16 of them (94%) responded "Yes" to the statement: I am creative. Similarly, 94% of them responded "Yes" to the statement: My students are creative (one respondent stated that they do not have students). Comparing this to my general research study of teachers in Ohio ($N = 71$), 47% of survey respondents stated "Yes" to the statement: I am creative, and 63% responded "Yes" to the statement: My students are creative (Author, 2019b). While the comparable number of respondents is vastly different, and admittedly small, the teachers who have taken this creativity training tend to have a stronger belief in their own creativity. In addition, there appears to be a relationship between teachers' perception of their own creativity and their perception of the creativity of students.

This relates to identity development and "creative self-efficacy" discussed by Kettler et al. (2018), and others (Beghetto & Karwowski, 2017; Farmer & Tierney, 2002; Karwowski & Lebuda, 2016; Puente-Diaz & Cavazos-Arroyo, 2017). The literature and research connecting self-efficacy (as well as creative metacognition and creative self-concept) to teacher beliefs and behavior may relate to a teacher's sensitivity to Beghetto's (2013) "micromoments" in the classroom, described as small, easy to miss pivotal points in teaching and learning interactions. Micromoments come about when students produce unexpected and creative ideas and perspectives. The teacher's openness, sensitivity, and responsiveness to these ideas and perspectives can mean the difference between suppression of the ideas and support or expansion of them. Beghetto encourages this kind of openness and responsiveness to micromoments as a way to support creativity in the classroom.

The literature on creative self-efficacy is promising. As I move forward with my creativity research, with my adaptations and updates to the course, and my own understanding of creativity as it applies to teachers, I see a strong connection between Piirto's ideas, the course's personal creativity work, and students' increased self-beliefs in their own creativity. These beliefs "play a role in determining whether a person will attempt to engage with or avoid a task" (Beghetto & Karwowski, 2017, p. 7), whether they will persevere when the tasks becomes difficult, and future task engagement. Farmer and Tierney (2002) offer a comprehensive summary chart of studies reporting correlational data for creative self-efficacy, yet K-12 teachers were not part of any of the sample populations, which included elementary, middle grades,

and college-age students, inventors, black entrepreneurs, and various domain-specific occupations in Vietnam, Israel, Australia, and Taiwan. Indeed, more research with populations of K-12 educators is needed.

There are always limitations to a study where participants self-report (Price & Murnan, 2004), especially the self-selection or attribution of memories that occurred years after the fact. Another limitation to this particular study includes the small sample size of both the survey and interview populations, as well as the lack of prior research on the Piirto model as it applies to teacher education. My own bias of the model may also have limited the study as I created survey and interview questions, in my direct interviews with participants (especially those for whom I was their instructor) and my analysis of responses. In future research I may have interviewees member-check narrative responses and engage a peer for periodic debriefing and review, in addition to self-reflection and memo-writing.

With an eye toward furthering research in the area of creative self-efficacy, this model has much potential. The concepts and processes in the Piirto model and the related activities are deeply personal, much may be learned by studying the impact of personal experience with these processes through creative self-exploration on creative self-efficacy and the development of creative identity.

The model emerged directly from Piirto's work with students and teachers, and the implications of the transformational nature of these ideas on teachers and, ultimately, their students are promising. The processes in the model do not favor any single domain. They are evident in all creative fields: from science to invention; from visual arts to musical composition; and from entrepreneurship to writers. Because the processes are evident in all creative fields, they offer more direct implementation into classrooms and classroom structures. The Core Attitudes of naivete or self-discipline, for example, can as easily be integrated into a lesson on number sense as in a physics lesson, and can even become part of classroom routines. For this reason, they go beyond packaged teacher texts of quick-fix strategies and become part of the educational environment.

I am interested in another use of the model as well, as a tool for teacher renewal. Recent national events have placed American K-12 educators in unknowable and often impossible situations, adding to the strain of an already emotionally demanding profession. Something I have seen in many of the teachers who have experienced the course since the beginning of the pandemic is that they are taking on the processes and concepts of the model as *ways of being in the world.* I have begun incorporating mindfulness activities and "three minute thoughtlog meditations" on the various themes, and I can see that some students are using the personal creativity assignments to gain some much needed personal time. The meditation day, for example, forced students to take a day for themselves. Prior to the pandemic, this activity was a whole-group experience. It must now be an independent activity—no spouses, no children, and with the phone on mute. Many students begin this assignment with a sense of dread and exhaustion, forced to take a day away from family and work. Yet their submitted reflections show a growing sense of calm, contemplation, and much needed quiet. They would probably otherwise not take these self-care moments except for the fact that they are

required assignments for a college course. In addition, they are able to connect the concepts from the course to the meditation day in a personal way. The power of these processes for teacher self-reflection and renewal much needed in these times.

The experience of creative work and deep interpersonal discussion that emerges from it appears to give teachers a sense of ownership and understanding of the mysteries of creativity. Teachers release control and become authentic learners alongside their students. Piirto provides insight into the creative process the way real creators do it. This allows for profound personal exploration, and the concepts are fun and easily integrated across the curriculum and into classroom structures. This model integrates creativity into very personal realms, it honors the mysterious and the transformative aspects of creative work. As Meeker (1992) noted in her blurb for the first edition of *Understanding Those Who Create*, this approach "will change the denial of inner urges to be creative."[AQ: 12]

According to Runco (2003), it is imperative that teachers give children the channels and chances to become more conscious of their own creative potential, as this awareness is the first step to developing it.). Perhaps the role of creativity training is to provide teachers the opportunity to become more aware of their own creative potential. The Piirto model is a compelling approach to help teachers develop it.

Author Contributors

The author is the sole contributor to the design and implementation of the research, to the analysis of the results, and to the writing of the manuscript.

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Supplemental Material

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About the Author

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