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Elementary Teacher Perceptions of Teaching Practices that Foster Creative Thinking in Students

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ELEMENTARY TEACHER PERCEPTIONS OF TEACHING PRACTICES THAT FOSTER CREATIVE THINKING IN STUDENTS

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Abstract

Divergent thinking is a 21st century skill that allows individuals to create innovative ways to alleviate societal burdens by finding new solutions to old problems. However, creativity is often overlooked or ignored in the classroom environment because the rigid atmosphere of authority does not allow for the simultaneous use of multiple cognitive abilities. What can teachers do, or are they doing, to ensure that divergent thinking is fostered in their classrooms? Three surveys were administered to 32 elementary school teachers to determine if there is a disconnect between what teachers believe fosters creativity with actual practices within the classroom. Survey responses indicate that teachers' personal beliefs, knowledge of creativity, and teaching practices do not indicate that they are fostering creativity in their classes. While teachers would like to provide more lessons that promote divergent thinking and foster creativity, mandatory standardized testing limits their ability to implement these activities.

Introduction

The United States Department of Education consistently re-evaluates the educational standards that are expected of schools across the country (Fletcher, 2011). Zarillo (2012) suggests that trying to "keep up" in the world market requires highly intelligent individuals with enhanced divergent thinking skills. He further notes that creativity is a 21st century skill that needs to be taught and cultivated in public schools.

Divergent thinking skills are used to make sense of the things in our world that do not have simple explanations (Newton & Newton, 2010). All children are born with a yearning for knowledge through exploration and an evaluation of the world around them. Infants constantly use their senses to discover information about the objects in their surroundings (Woolfolk, 2009). This practice continues in elementary school as children gain information about their expanding environment; they use divergent thinking skills to make sense of the things in their community that do not have straightforward simple explanations (Newton & Newton, 2010). One way in which divergent thinking skills are developed is by having children create stories to explain phenomena that do not make sense to them.

Newton and Newton (2010) indicate while the enhancement of the creative process is ideally suited for elementary school children, some teachers (a) do not foster this kind of exploration for various reasons, or (b) do not have adequate time to engage in divergent thinking lessons. These researchers suggest that teachers who foster an appreciation for creativity and innovation and who receive administrative support for these activities can provide students with the cutting edge opportunities to enhance their future endeavors.

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Definition of Terms

Creativity. Creativity is comprised of small or large successful steps into a new thought process or area of knowledge (Torrance, 1977). It is important to note that creativity is not equivalent to academic giftedness. Giftedness is an inborn quality or talent while creativity requires multiple innate cognitive abilities and personal characteristics, as well as the appropriate motivation and an enriching environment (Fletcher, 2011). Creativity leads to new ideas that solve problems in innovative ways to ease the demands of society and to help people take steps forward in any given knowledge area. A creative contribution is a decision that one makes when they have an idea that they believe will make a difference and be accepted by others (Newton & Newton, 2010). Divergent thinking is a skill needed for the development of creativity; the two terms are often used synonymously throughout this study because of this close relationship.

Teacher Perceptions. Teacher perceptions are defined as a professional educator's view on an issue. Perceptions are also the difference between teachers' beliefs about a topic and their actions in response to those beliefs. For example, teachers may believe that all questions are important, however they may not have time throughout the day to answer all of their students questions. This difference will demonstrate their perception, or understanding, of what is happening within their classroom (Newton & Newton, 2010).

Master of Arts in Teaching (M.A.T.) Liaison. University professors that work specifically within a local school to accompany and assist interns within that school are identified as M.A.T. Liaisons. They help interns and teachers connect what is being taught in the elementary schools with the curriculum at the University. In addition, M.A.T. Liaisons observe interns as they teach in the public schools.

21st Century Skills. The 21st century is a time of great technological growth; the skills needed to succeed are different than those needed in previous centuries. Today's student needs a specific set of skills, including creativity, to be successful in the future career market (Fletcher, 2011). In other words, the world is rapidly changing and the educational system needs to be able to "keep up" with the changing demands in order to ensure success for students, their communities and for the nation. Twenty-first century skills include divergent thinking and problem solving, collaboration, adaptability, initiative, effective communication, accessing and analyzing information, and curiosity and imagination. These skills emphasize how students are learning, thinking, and working, not how well they can pass a content-based test (Zarillo, 2012).

Divergent Thinking. Divergent thinking is not a synonym for creativity; however divergent thinking is a thought process that lends itself to creative thought. This process allows people to think outside the norm and to create new solutions (Robinson, 2005). Divergent thinking is the process by which students arrive at unique and innovative ideas that do not necessarily correlate with the traditional teachings within the classroom. As a result, each individual student arrives at the correct answer or a new answer using an approach nonconforming to his or her peers (Robinson, 2005).

Google© Docs. Two out of three of the surveys in this study were administered through Google© Docs. Google provides a complimentary service to their customers that allows them to create forms and documents online and to share them with anyone who has access to the Internet. Google© Docs can be used to create and administer surveys for research via email.

Purpose of the Study

According to Newton and Newton (2010), today's world requires more divergent thinking skills than have been needed in the past due to ever increasing technology, yet many educators do not alter their teaching plans to address the need to foster divergent thinking. In

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addition, teachers do not always define creativity in the same manner as researchers; for example, teachers often view creativity in terms of writing and art, they do not perceive it as a process of *thinking* and *processing information* (Bolden, Harries, & Newton, 2010). Divergent thinking skills can be fostered in all content areas and in various ways throughout the school day, especially during the elementary years. Teachers often believe they foster creativity by allowing students to draw pictures and create projects on their own; in reality, creativity is a process that requires a great deal of attention to develop to its full potential (Newton & Newton, 2010).

The purpose of this research project was to examine (a) the ways in which teachers define creativity in the classroom, (b) teachers' beliefs about the importance of creativity in the classroom, and (c) the ways in which activities in the classroom environment promote divergent thinking skills. Findings from this research project may help lead to an understanding of how these skills can be incorporated into classroom lesson plans.

Review of Literature

Creative thinking skills are important for success; for example, it is often creative people who make large advances toward the betterment of society such as Thomas Edison or the Wright Brothers (Newton & Newton, 2010). Learning tends to happen best in situational contexts; memorization of rote facts provide minimal achievement in a constantly advancing world (Woolfolk, 2009). Not establishing innovative skills at the elementary level can damage a child's creative potential and hinder their success in future endeavors (Robinson, 2006). As a result, it is important for educators to ensure that divergent thinking skills are included in the curriculum.

Sternberg (2006) suggests that creative thinking is a combination of many skill sets that people can be creative in a wide variety of ways. According to Torrance (1977), creative thinking involves sensitivity to problems, fluency, flexibility, originality, elaboration, and redefinition abilities. All of these skills work together to create the creative thinking process in which a person finds a problem, produces a method to solve the problem, tests the possible solutions and redefines the situation with a new solution to the problem. This process follows a very natural pattern of tension reduction. In other words, the anxiety we feel when something is wrong drives a motivation, through tension, to find a solution. Ghysels (2009) suggests that while content knowledge is important in education and in life, it is not the only element required for success; people also need critical thinking and problem solving skills to reduce tension and to find success.

Student Characteristics

All children are born with a creative capacity and have the ability to use creative thinking skills long before they enter the traditional school system (Torrance, 1977). Children mature over time just as other physical and intellectual abilities develop throughout childhood; they are constantly finding new ways to accomplish tasks in their everyday life, as well as create stories and play environments to entertain themselves and others. Research has shown that the creative, imaginative abilities in childhood tend to achieve their peak when a child reaches approximately four years of age (Torrance, 1977). Thus, by the time children enter preschool a drastic drop in creativity is typically observed (Lau & Cheung, 2010). It was originally thought that the decrease had biological roots (Torrance, 1977); however contemporary research findings suggest that a cultural cause, such as pressure to conform, creates this decrease (Lau & Cheung, 2010). In other words, the school system may teach children to hide their creative abilities since these skills are often indirectly suppressed within or outside the classroom environment through monotonous routines and strict guidelines (Robinson, 2006). Westby (1995) suggests that educators often emphasize learning through direct instruction and acceptance of information as

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fact in lieu of questioning. As a result, children's ideas may be stifled either by a teacher's direct or indirect disapproval or avoidance.

Learning preferences also favor creative thinking abilities. Creative learning methods include experimenting, questioning, testing, manipulating, and exploring (Torrance, 1977). Findings from the literature (Beghetto & Kaufman, 2013; Kim & VanTassel-Baska, 2010; Torrance, 1977) suggest that learning creatively through these and other strategies may increase academic achievement. In addition, educational progress can be hindered when students are forced to learn by authoritarian methods, rather than using creative methods that promote choice (Fletcher, 2011). Creative learning activities may also help educators diversify instruction and meet the needs of all students. In other words, allowing students to learn through exploration can lead to a much more meaningful educational experience (Fletcher, 2011).

Teacher Perceptions

A series of studies completed by Westby and Dawson (1995) examined the correlations between teachers' opinions of students and student personality traits associated with creativity. Two studies were conducted in the series. In the first study a statistically significant positive correlation was found between the teachers' identified least favorite student and the creative prototype; however there was no significant correlation between the teachers' most favorite student and the creative prototype. Previous research by Feldhusen and Treffinger (1977) suggests that 95% of teachers agreed that class time should be spent on encouraging creativity. This paradox prompted the second stage of research in which teachers were asked to identify creative personality traits. The list compiled by the teachers as those characteristics considered creative drastically differed from previous scientific research conducted on creative traits and the creative prototype in the first study (Westby & Dawson, 1995). For example, when the teacher ratings of the most favorite and least favorite students were compared with the teacher's own prototype, no correlation was found between the least favorite or most favorite student and the revised creative prototype (Westby & Dawson, 1995). Thus, it was concluded that creative traits do not influence a teacher's opinions or beliefs about a student.

Researchers have found a disconnect between what teachers say they believe about creative thinking and what they do to promote creative thinking. In other words, teachers could be discouraging creativity because they find creative characteristics in children to be distracting and/or hard to manage (Fletcher, 2011). In addition, some researchers suggest that teachers may also limit creativity by developing a rigid classroom environment (Westby & Dawson, 1995).

Methods

Participants and Setting

The purpose of this study was to determine whether teacher perceptions of creativity match their practices within the classroom. A convenience sample of 32 elementary school teachers in Northwest Arkansas was included in this study. The five schools were chosen based on convenience and on the availability of a M.A.T. liaison to deliver the first round of surveys to the specific schools. To acquire an appropriate sample of 32 volunteers, at least 60 teachers were invited to participate in this study. The teachers who completed a survey were from various grade levels, and included teachers in the gifted, special education, and English as a Second Language (ESL) programs.

Variables

The survey instruments used for this study included questions about the daily practices and procedures in the classroom, teacher expectations and grading methods. Classroom practices and procedures included the location of materials in the classroom, student choices, and

instructional methods. Grading and teacher expectations focused on what the teacher seeks in terms of student work and their participation in the classroom environment. The surveys were created by this researcher based on the review of the literature; the reliability and validity of the instruments is unknown.

Data Collection Procedures

Written permission was obtained from the gifted and talented coordinator for the public school system prior to the beginning of this project. To maintain confidentiality of the participants in the study, the letter of approval has not been included in this document. However, Appendix A provides an example of the letter that was signed to grant permission to initiate this research study. In addition, the University of Arkansas Institutional Review Board granted approval to conduct the research project (See Appendix B).

Participation in this survey series was voluntary, and informed consent (see Appendix C) was gained through the completion of the first survey. Each survey included approximately 20 items and was expected to take less than 15 minutes to complete. Respondents were informed that their individual responses would be aggregated with other responses to insure confidentiality; therefore, the results do not specifically identify any individual. M.A.T. liaisons were included in this study as a direct connection to respondents and as a way to distribute the first survey to a convenience sample of participants. The second and third surveys were sent to the teachers via electronic mail and administered on the teachers' own time through the use of an online program called Google$^©$ Docs. Each individual response was gathered and recorded into a set of aggregated data. The information gained from these surveys was used to analyze teacher perceptions of the teaching practices they use to foster creativity in their students.

Instrument

The research instrument used in this study included an integration of three surveys that were completed by participants in a consecutive manner. In other words, each survey was given to the participants upon completion of the previous survey. The researcher created each survey after conducting an extensive review of the research literature related to the activities and qualities that promote creative thinking. Surveys 1 and 2 each consisted of 22 activities/ideas in the areas of grading, classroom practices and procedures, and teacher expectations. The reliability and validity of the surveys is unknown. Each question was rated on a Likert-scale from 0-10. The respondents were asked to mark their degree of agreement with each statement by selecting a number between 0 (Never) and 10 (Always).

The first survey was designed to measure how often various activities occur within the classroom. There was an approximate even number of activities that helped and hindered creative thought included in the survey. The second survey was designed to measure which activities teachers perceived as fostering creativity. Survey 3 was designed to measure individual teacher beliefs about creativity in general, as well as with children present in the classroom. It used a combination of Likert-scale questions and short answer spaces to leave comments and notes.

Procedure

Survey 1 provided a list of classroom activities that promote and hinder creativity; teachers were instructed to rate the activities on a scale of 1-10 based on how often they perform the activities in their classroom. To gather participant email addresses for future surveys the M.A.T. liaisons distributed the first paper-based survey directly to the classroom teachers. The first survey was analyzed and results were drawn based on the ratings given to the creativity-promoting activities.

Surveys 2 and 3 were then delivered electronically through Google© Docs to the email addresses provided by the respondents. It was decided that Google© Docs would be used for the convenience of both the respondent and the researcher as technology plays an integral role in both positions. The surveys were sent in a timely manner and reminder emails were sent several days after the delivery of the surveys. Survey 2 used the same activities as the first survey however this time it instructed teachers to rate the activities based on their belief in its potential to foster creativity. The results from Survey 2 were compared to the results from Survey 1 to examine the relationship between the teacher's beliefs about creative thinking and the amount of class time spent promoting creative thoughts and behaviors with their students.

Survey 3 incorporated items asking teachers to give their opinions and their beliefs on promoting creativity in their own classroom environments. This final survey provided feedback describing each respondent's perception of creativity for their classroom based on the teacher's beliefs and classroom practices.

Results

Demographics

All respondents were female; teachers were evenly distributed among kindergarten through 5th grades. However, the distribution of participants from each of the five schools was not evenly distributed, with the majority of the respondents employed at only two of the five identified schools. Figures 1 and 2 display demographic data for the sample.
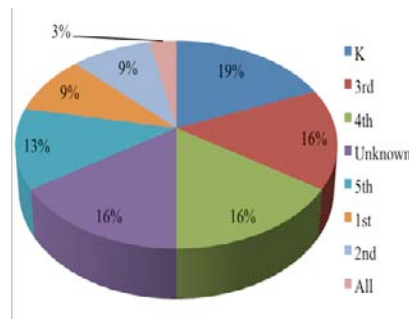

Figure 1. The percentage of respondents from each participating grade level.
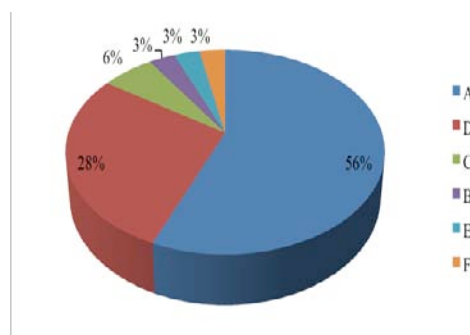
Figure 2. The percentage of respondents from each participating school.

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Participation

Survey 1 was paper- based and delivered to the respondents by the M.A.T. liaisons. Thirty-two teachers responded to the first survey regarding how often various activities occur in their classroom (as seen in Figure 3). Survey 2 and 3 were delivered electronically through Google© Docs; there was a 50% decrease in survey completion between Survey 1 and 2, with 16 completed responses in total. An additional 25% decrease was seen from Survey 2 to Survey 3, with 12 completed responses in total.
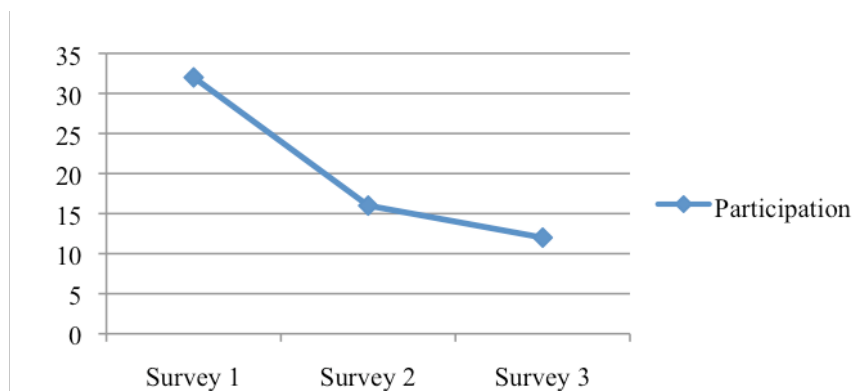
Figure 3. Frequency of participation for each survey administered.

Data Analysis

For data analysis purposes, the questions presented in Surveys 1 and 2 were divided into the following two dichotomous categories: (a) teaching activities that foster creativity and (b) teaching activities that do not foster creativity. The participants did not know which questions fell into each category and the questions were in a random order on the survey in an effort to minimize bias. The responses from all three surveys were separated into the following five categories: strongly disagree (0-1), disagree (2-3), neutral (4-6), agree (7-8), and strongly agree (9-10).

The results from the first survey are displayed in Tables 1 and 2. This survey examines whether or not each of the stated activities is occurring in the teachers' classrooms on a regular basis. The frequency and percentage of responses that fell into each category are recorded as well as the mean response for each question. Table 1 examines the questions that foster creativity and Table 2 addresses the questions that do not foster creativity.

Table 1. Frequency and mean of activities that foster creativity in the classroom.

Question	SA	A	N	D	SD	Mean
Q1	1	20	9	2	0	6.71875
Percentage	3%	63%	28%	6%	0%	
Q2	16	13	3	0	0	8.21875
Percentage	50%	41%	9%	0%	0%	
Q3	3	4	12	5	8	4.0625
Percentage	9%	13%	38%	16%	25%	
Q5	1	8	18	5	0	5.46875
Percentage	3%	25%	56%	16%	0%	
Q7	1	11	17	2	1	5.84375
Percentage	3%	34%	53%	6%	3%	
Q10	19	12	1	0	0	8.71875
Percentage	59%	38%	3%	0%	0%	
Q12	4	19	8	1	0	6.96875
Percentage	13%	59%	25%	3%	0%	
Q14	29	3	0	0	0	9.71875
Percentage	91%	9%	0%	0%	0%	
Q16	11	9	7	4	1	6.8125
Percentage	34%	28%	22%	13%	3%	
Q17	11	15	6	0	0	7.9375
Percentage	34%	47%	19%	0%	0%	
Q18	14	14	4	0	0	8.21875
Percentage	44%	44%	13%	0%	0%	
Q20	6	15	11	0	0	6.90625
Percentage	19%	47%	34%	0%	0%	
Q21	5	17	8	2	0	6.875
Percentage	16%	53%	25%	6%	0%	

Note: SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

1. I involve multiple senses in my lessons.
2. I relate the content material in my class to real-world experiences.
3. Grades in my class are mostly based on the student having the correct answer not the correct process.
5. Friendly competition takes place in my classroom.
7. I allow children to choose their own projects for demonstrating their knowledge.
10. My students are comfortable asking questions and making mistakes.
12. I use activities that require my students to create a solution or idea.
14. I respect the ideas of all the children present in my classroom.
16. I use ungraded assignments to allow my students to practice new material.
17. I use visualization as a technique in my classroom.
18. I encourage independent learning.
20. I provide activities that allow my students to think backwards to solve a problem.
21. I use brainteasers, word problems, and puzzles in my classroom.

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Table 2. Frequency and mean of activities that do not foster creativity in the classroom.

Question	SA	A	N	D	SD	Mean
Q4	0	1	1	5	25	0.84375
Percentage	0%	3%	3%	16%	78%	
Q6	10	12	7	2	1	7.21875
Percentage	31%	38%	22%	6%	3%	
Q8	0	1	20	9	2	4.15625
Percentage	0%	3%	63%	28%	6%	
Q9	6	17	8	0	1	7.125
Percentage	19%	53%	25%	0%	3%	
Q11	0	2	15	10	5	3.6875
Percentage	0%	6%	47%	31%	16%	
Q13	1	5	24	2	0	5.4375
Percentage	3%	16%	75%	6%	0%	
Q15	3	8	15	4	2	5.375
Percentage	9%	25%	47%	13%	6%	
Q19	12	19	1	0	0	8.4375
Percentage	38%	59%	3%	0%	0%	
Q22	8	11	11	2	0	7.03125
Percentage	25%	34%	34%	6%	0%	

Note: SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

4. I keep my art materials (markers, glue, crayons, scissors, etc.) locked up and not available to the children.
6. I involve my students in a brainstorming process before starting a new project or concept.
8. I focus on topics in my classroom that the children already understand.
9. When grading student work I provide ample feedback along with the grade.
11. My students spend the majority of the day seated at their desks.
13. When I ask questions I am looking for the correct answer.
15. I show examples of someone else's work before beginning a new project.
19. I teach multiple ways of finding a solution to a problem.
22. I praise neatness and consistency.

As highlighted in Table 1, of the 13 questions that examined classroom activities that foster creativity only five (38%) of the activities were frequently occurring in respondent classrooms. Questions 2, 10, 14, 17, and 18 had a mean score of 7 or higher (see Figure 4), demonstrating that the majority of teachers ranked this activity as agree or strongly agree. These five questions all involved instruction and teacher views of the student and their creative ideas.
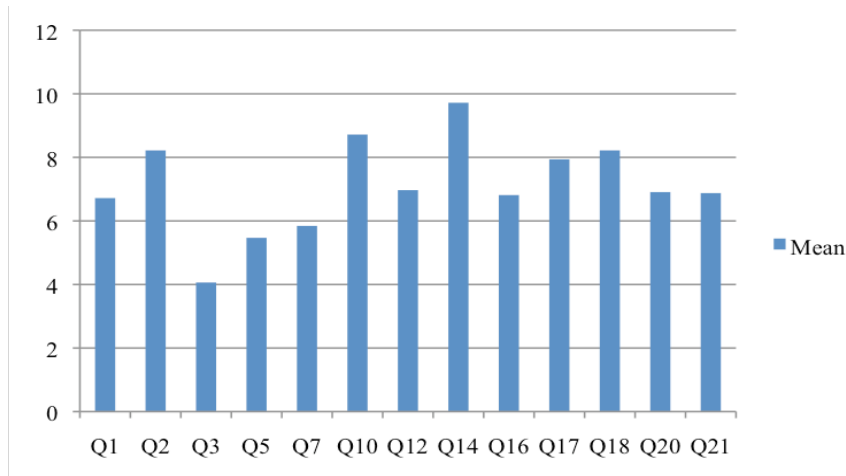
Figure 4. Mean response for the occurrence of activities that foster creativity.

Nine questions in this survey suggest activities that do not foster creative thinking; of these, four (44%) occurred often within the respondents' classrooms. Questions 6, 9, 19, and 22 all received an average rating of 7 or higher as shown in Figure 5. A greater percentage of questions that provide examples of ways to not foster creativity received an average rating of 7 or higher, indicating that activities that do not foster creativity are just as prevalent, if not more prevalent, in the respondent classrooms.
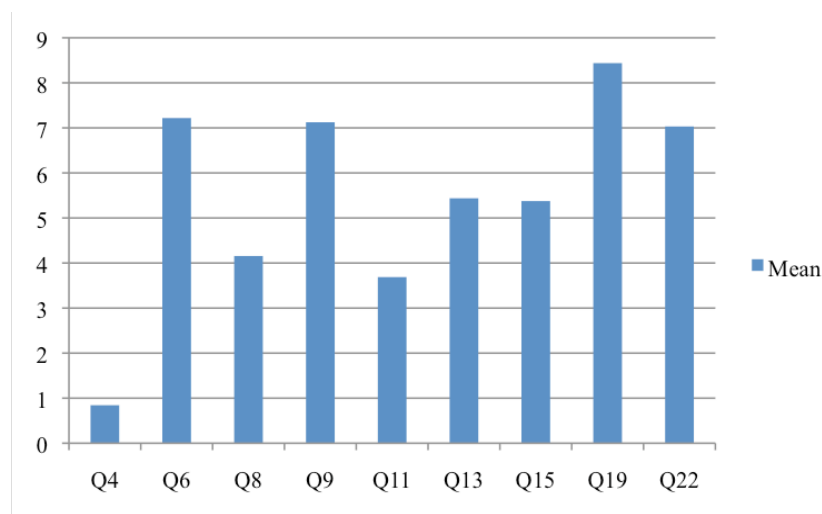
Figure 5. Mean response for the occurrence of activities that do not foster creativity.

Survey 2 asked teachers to rate the same statements as Survey 1 based on whether they believe the activities foster creativity in the classroom. The same categories for analyzing responses in Survey 1 were used for Survey 2. The results from Survey 2 are displayed in Tables 3 and 4. The frequency and percentage of responses that fell into each category are recorded as well as the mean score for each question. Table 3 examines the questions that do foster creativity and Table 4 addresses the questions that do not foster creativity.

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Table 3. Frequency and mean of perceptions of activities that foster creativity.

Question	SA	A	N	D	SD	Mean
Q1	3	9	4	0	0	7.4375
Percentage	19%	56%	25%	0%	0%	
Q2	4	10	2	0	0	7.75
Percentage	25%	63%	13%	0%	0%	
Q3	2	3	7	2	2	5
Percentage	13%	19%	44%	13%	13%	
Q4	10	3	3	0	0	8.5
Percentage	63%	19%	19%	0%	0%	
Q5	0	11	5	0	0	6.75
Percentage	0%	69%	31%	0%	0%	
Q7	6	7	3	0	0	7.9375
Percentage	38%	44%	19%	0%	0%	
Q10	5	10	1	0	0	8
Percentage	31%	63%	6%	0%	0%	
Q12	5	5	6	0	0	7.5625
Percentage	31%	31%	38%	0%	0%	
Q14	9	7	0	0	0	8.9375
Percentage	56%	44%	0%	0%	0%	
Q16	3	8	3	1	1	7.125
Percentage	19%	50%	19%	6%	6%	
Q17	5	7	4	0	0	7.5
Percentage	31%	44%	25%	0%	0%	
Q18	4	9	3	0	0	7.5625
Percentage	25%	56%	19%	0%	0%	
Q20	3	7	4	2	0	6.8125
Percentage	19%	44%	25%	13%	0%	
Q21	4	5	6	1	0	7
Percentage	25%	31%	38%	6%	0%	

Note: SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

1. Use of multiple senses in a lesson
2. Relating content material to real-world experiences
3. Basing grades on the correct answer not the correct process
4. Keeping art materials available at the student's level throughout the day
5. Friendly competition
7. Providing multiple options for students to demonstrate their understanding of the material
10. Asking questions and making mistakes
12. Creating new ideas and solutions to problems
14. Respecting and rewarding the ideas of others, including children
16. Providing ungraded practice problems
17. Using a visualization technique
18. Encouraging independent learning
20. Using activities that make children think backwards to find the solution
21. Using brainteasers, word problems, and puzzles

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Table 4. Frequency and mean of perceptions of activities that do not foster creativity.

Question	SA	A	N	D	SD	Mean
Q6	5	8	3	0	0	7.6875
Percentage	31%	50%	19%	0%	0%	
Q8	2	5	7	2	0	6
Percentage	13%	31%	44%	13%	0%	
Q9	1	12	3	0	0	7.5
Percentage	6%	75%	19%	0%	0%	
Q11	0	0	10	5	1	3.8125
Percentage	0%	0%	63%	31%	6%	
Q13	0	1	7	5	3	3.6875
Percentage	0%	6%	44%	31%	19%	
Q15	0	8	4	4	0	5.6875
Percentage	0%	50%	25%	25%	0%	
Q19	6	7	3	0	0	7.9375
Percentage	38%	44%	19%	0%	0%	
Q22	1	2	10	3	0	5.1875
Percentage	6%	13%	63%	19%	0%	

Note: SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

6. Brainstorming before beginning a new project
8. Focusing on topics the children have previously learned or understand
9. Providing ample feedback along with a grade
11. Spending time doing seatwork
13. Asking questions with one specific answer in mind
15. Showing examples of previous work before starting a project
19. Teaching multiple ways to solve a problem
22. Praising neatness and consistency

Of the 14 questions that examine classroom activities that foster creativity, respondents believed that 11 of them (79%) did in fact foster creativity. Only questions 3, 5, and 20 had a mean score of less than 7 (see Figure 6), suggesting that the majority of teachers have accurate perceptions of creative activities. The three questions that did not have a high mean score all involved the instructional process and activities within the classroom such as friendly competition and thinking backwards.
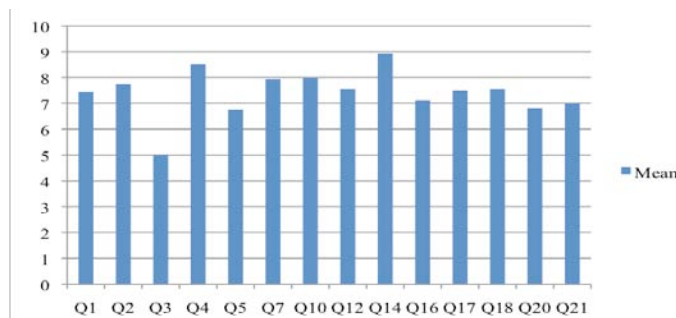
Figure 6. Mean response for perceptions toward activities that foster creativity.

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Eight questions suggested activities that do not foster creative thinking; respondents rated three (38%) of them as fostering creativity with a mean score of 7 or higher. In other words, teachers believed that these three questions foster instead of hinder creativity. These included questions 6, 9, and 19 as shown in Figure 7.
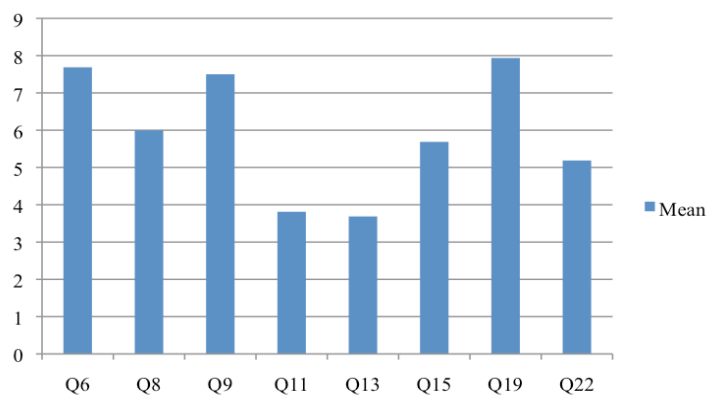
Figure 7. Mean responses for perceptions of activities that do not foster creativity.

Survey 3 examined teacher perceptions of their own classrooms and their own teaching practices. The frequency and percentage of responses are shown in Table 5; the mean response is presented in Table 5 and in Figure 8. Questions 1 and 2 had a mean response of 7.167 and Questions 5 and 6 had a mean response above 8. A total of four out of the 6 questions (67%) resulted in average ratings of 7 or higher, demonstrating that teachers agree that they are fostering creativity in their own classrooms.

Table 5. Frequency and mean of teacher perceptions of their own classroom.

Question	SA	A	N	D	SD	Mean
Q1	2	6	4	0	0	7.166666667
Percentage	17%	50%	33%	0%	0%	
Q2	2	6	4	0	0	7.166666667
Percentage	17%	50%	33%	0%	0%	
Q3	3	2	6	1	0	6.416666667
Percentage	25%	17%	50%	8%	0%	
Q4	2	2	5	3	0	5.916666667
Percentage	17%	17%	42%	25%	0%	
Q5	6	6	0	0	0	8.833333333
Percentage	50%	50%	0%	0%	0%	
Q6	6	5	1	0	0	8.416666667
Percentage	50%	42%	8%	0%	0%	

Note: SA= Strongly Agree, A= Agree, N= Neutral, D= Disagree, SD= Strongly Disagree

1. My classroom environment is one that fosters creativity
2. I provide opportunities for creative behavior
3. I *plan* activities for the purpose of fostering creativity
4. I consider myself creative
5. I reward ideas as well as answers
6. I believe that every one of my students is creative
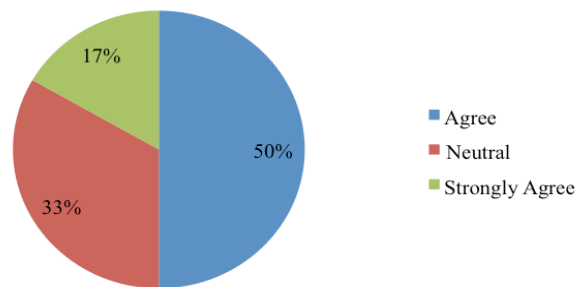
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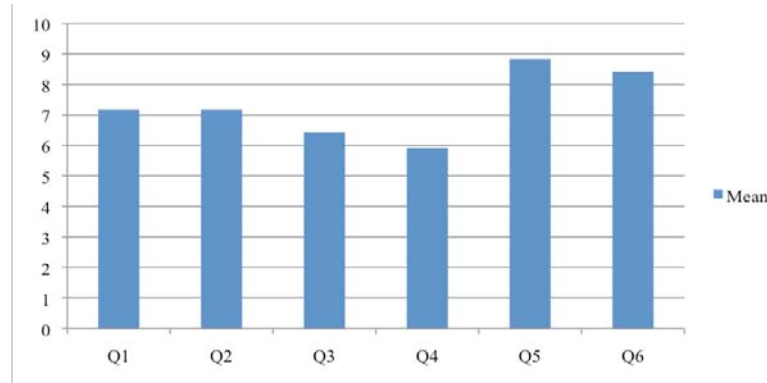
Figure 8. Mean response for teacher perceptions of their own classroom.

Each question on Survey 3 provided space for teacher comments to enhance the researcher's understanding of participant beliefs. Question 1 focused on the classroom environment being one that fosters creativity. As shown in Figure 9, half of the responses fell into the agree category on question 1. The comments for question 1 frequently mentioned creativity in writing and providing opportunities for choice.
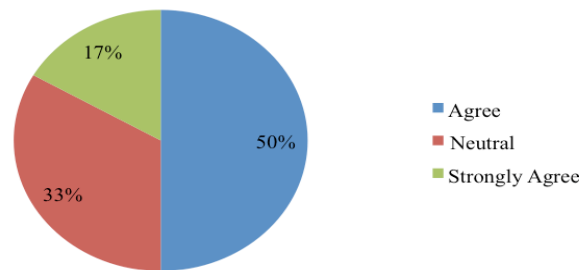
Figure 9. Percentage of respondents who believe their classroom environment fosters creativity.

Question 2 displayed a very similar distribution as question 1. For example, 50% of respondents agreed that they provided opportunities for creative behavior within their classroom activities (as seen in Figure 10). Respondents also indicated through their qualitative comments that writing was the easiest content area in which to integrate creative activities while science and social studies tend to have fewer opportunities due to the required curriculum.

Figure 10. Percentage of respondents who believe they provide opportunities for creativity.

Question 3, which asked teachers to reflect on whether they plan activities for the purpose of fostering creativity, received significantly more negative responses. The ratings given were neutral or below in 58% of the responses (as shown in Figure 11). Two out of five of the comments revealed that activities were planned for the purpose of teaching content and assessing knowledge. It was also mentioned by one respondent that many activities are required and that there is no choice in the planning process.
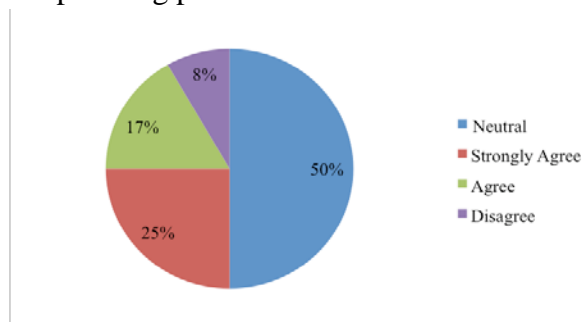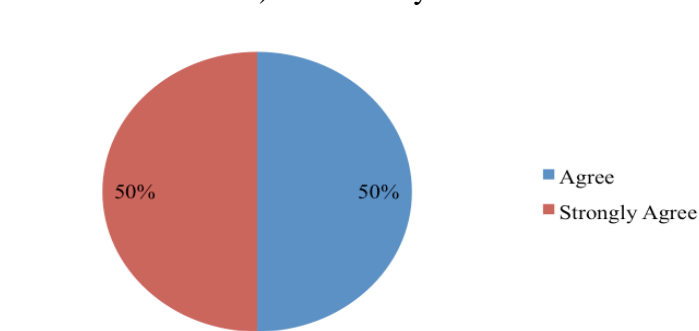

Figure 11. Percentage of respondents who believe they plan for the purpose of fostering creativity.

Two-thirds of respondents rated question 4 as neutral or below as shown in Figure 12, suggesting that 34% of respondents believe that they are creative. One of the respondent's comments referred to hobbies that foster creativity while another comment referred to spontaneity and flexibility as creative traits.
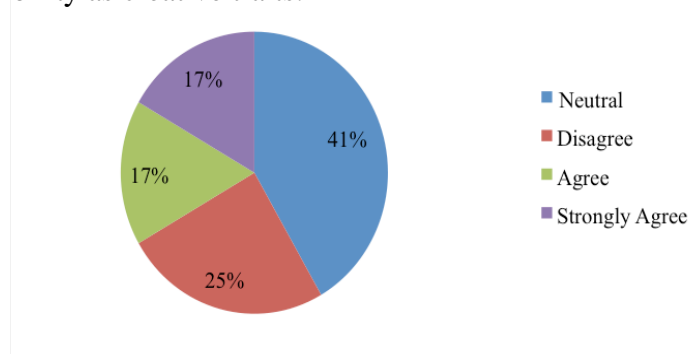
Figure 12. Percentage of respondents who believe they are creative.

One-hundred percent of respondents agreed or strongly agreed with question 5 as seen in Figure 13. Thus, participants believe they value all ideas and processes as well as the final learning product. Comments on this question suggest that sometimes teachers simply seek ideas (or ideas that can be considered answers) even if they are not the correct responses.
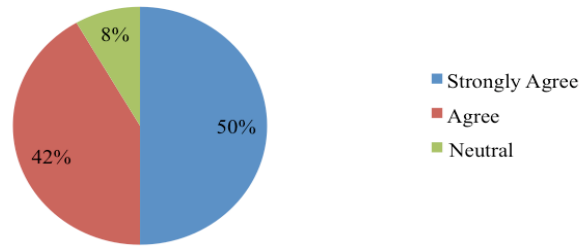

Figure 13. Percentage of respondents who believe they reward ideas as well as answers.

Question 6 also received very high ratings as shown in Figure 14; this suggests that 92% of the respondents believe that every one of their students is creative. Three comments revealed that teachers believe students are all creative but that each student displays their creativity in different ways.

Figure 14. Percentage of respondents who believe all of their students are creative.

In summary, the results indicate that while teachers are able to recognize creative activities, 79% of the time they are only putting 38% of creative activities into practice in their classrooms. Despite the low occurrence of creative activities in the classroom, 67% of respondents believe that their classroom is one that fosters creativity.

Discussion

Research findings from this project suggest that teachers in Northwest Arkansas perceive that creativity is important in the classroom; however, findings also suggest that teacher perceptions regarding creativity and classroom lesson plans/actions do not always align. In Survey 1 the responses indicate that creative teaching practices do not occur frequently in the classroom. In fact, activities that hinder creativity seem to occur more often than those that foster divergent thinking. Teachers identified many elements that hinder the amount of time that can be spent on creative thinking. For example, standardized testing, statewide curriculums, and school administrator mandates were identified as factors that play a role in how teachers can structure their instructional time. Based on the literature, teachers need to be able to integrate lessons involving divergent thinking into content learning goals in order to provide children with the 21st century skills they will need for future success (Newton & Newton, 2010; Zarillo, 2012).

Findings from Survey 2 suggest that teachers have a strong understanding of what activities foster creativity. Respondents were able to correctly identify creative activities on the survey 79% of the time. Turning to activities that do not foster creativity, respondents were in agreement 62% of the time. This research project aimed to examine whether a disconnect between knowledge and practice exists in the classroom. Findings indicate that while teachers do have knowledge about creativity and value its importance in the classroom, creative activities are not always applied in their classroom practices due to the previously identified barriers. Thus, there seems to be little instructional time spent intentionally pursuing divergent thinking in daily classroom lessons and routines.

Question 14 displayed the highest mean scores in both Surveys 1 and 2, demonstrating that teachers (a) respect the ideas of children, and (b) believe that ideas help foster their creativity. In other words, respondents seem to be aware that their attitude towards children's thinking and their responses in the classroom have an impact on the way children will think in the future. Thus, fostering a positive relationship with students and keeping the level of respect high may make students more comfortable with exploring their thoughts and ideas within the classroom.

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Question 3 received the lowest mean rating in both Surveys 1 and 2, displaying a misconception that teachers may hold. This question addresses the grading method whereby teachers grade only the correct answer and do not grade the process. The emphasis on correct answers could be from pressure from administrators (due to standardized testing) or simply due to traditional methods of teaching. Despite the reason, teachers seem to feel the need to grade for the correct answer. Teachers can rectify their usual grading method by using an analytic scoring tool, similar to a rubric, that allows them to grade student understanding of the task, the method the student used to complete the task, as well as the accuracy of the answer.

Question 22 also displayed interesting results. This question addressed whether teachers praise neatness and consistency, two concepts that do not generally foster creative thinking. The mean score regarding this question was 7 for Survey 1 and 5.2 for Survey 2. This finding indicates that teachers appear to be neutral toward the ability of neatness and consistency to foster creativity but often engage in praising neatness and consistency in the classroom. The respondents are correct in that neatness and consistency do not always lend themselves to creativity. Thinking creatively involves taking risks and experimenting with new tasks without being concerned with the outcomes or consistency of the results. Yet teachers tend to praise students who are neat because it makes grading and classroom management much easier. This can hinder the actions of the divergent thinker because their work often is more disorganized and chaotic as their thinking develops.

The responses to Survey 3 demonstrate that the majority (67%) of teachers believe they foster creativity in their classrooms; they also indicate that teachers see room for improvement. Question 4 asked teachers to report on their own level of creativity; the majority of teachers did not consider themselves to be creative. This question had a mean response of 5.9, which is much lower than the other questions on this survey. Results suggest that if teachers do not think that they are creative, it will likely be increasingly more difficult for them to create lessons to foster creative thinking and to teach the skills necessary for innovative thought.

There were also multiple comments by respondents regarding (a) the need to teach required activities and (b) being able to explore creativity only in writing and math. Because of the mandatory curriculum standards and the set activities for each grade level to teach to these standards, it is likely that teachers are not able to plan activities that will foster divergent thinking. One teacher noted that creativity never happens in her science and social studies curriculum; these subject areas could offer a wide variety of inquiry activities that require students to think innovatively and use their resources to arrive at an answer. Thus, it may be that due to individual and structural barriers, children are missing out on opportunities to develop their divergent thinking skills if they are not allowed to explore their beliefs about social issues, scientific findings, and current events.

Conclusion

In general, respondents understand that creativity is an important skill in today's society and want to foster its growth in the classroom. However, they do not feel that they are doing everything they can in the classroom to foster these skills. Based on their responses, teachers generally foster creativity by respecting student ideas but not via planned activities in their classrooms. In addition, the strong focus on standardized testing and ensuring mastery of grade level content may create a barrier for students to create innovative solutions to problems within their own lives and within the classroom.

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Limitations of this Research

Many factors need to be considered as the data from this research are interpreted. The first limitation is the sample size for this study, particularly for Survey 1 and 2. A larger sample size would create a more even distribution of demographics and responses, to gain more confidence in the results, and to provide for generalizability. Some barriers to obtaining a larger sample size included difficulty reaching administrators at various schools to obtain permission to contact their instructors to participate in the study. Changes were made to include an initial paper-based survey as one way to collect teacher emails. The level of involvement by specific M.A.T. liaisons may also have led to the majority of respondents being from particular schools.

Another limitation is the attrition rate in between surveys; when switching to electronic surveys 50% of all respondents dropped out of the research project. Thus, collecting data in three separate waves may have caused the convenience sample to be smaller than originally expected.

There have been no tests to ensure that the surveys used to administer this research are valid and reliable. Participation in the survey series was voluntary and based on self-refection from each individual teacher within the school system. Thus, generalizations cannot be drawn to make conclusions about any one school or school district. Since no other data were collected outside of the survey measures we must consider possible bias when interpreting the results due to self-reports.

Implications

Results suggest that teachers have a strong understanding of creativity and its importance within the classroom; however it appears that some of the participants in this study may either hold misconceptions on the practices that foster creativity or experience structural barriers to implementing creative activities. Findings from this research study suggest that the emphasis on standardized testing and high scores may have redirected the focus from creative thinking skills to mastery of content. Teachers may benefit from practice and instruction on how to integrate both the content standards and creative thinking skills to ensure the most potential for the future success of their students. While this research demonstrates that respondents believe that creativity is an important skill for the future, they are unsure how to incorporate creativity into their classrooms, especially while maintaining success with the content standards and required activities provided by the curriculum.

Recommendations for Future Research

In future research studies on this topic, a larger more representative sample should be collected. Data should be collected from multiple schools, grade levels, and districts in a geographical area that might be used to generalize findings to a larger population. This sample only considers teachers in Northwest Arkansas; a larger sample including multiple regions could show a difference in beliefs by region or a more general consensus of creativity in the classroom.

Based on this data, there is no significant positive correlation between what teachers believe is creative and what creative activities they practice in their classrooms. It would be interesting to involve the use of case studies within particular classrooms or other observational data to supplement these findings. The responses to the surveys were based on self-reflection, therefore adding an observational element would provide an external perspective of what is happening in the classroom. Data could also be collected before and after teaching a lesson that fostered divergent thinking to examine how practicing this process may or may not increase student success.

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If this same study were repeated, it may be advisable to include fewer questions in the individual surveys and/or to collect data at one point in time. The large amount of items on the survey may have caused the respondents to cease participation in the subsequent surveys due to completion time. Many respondents to Survey 3 did not provide any comments; perhaps fewer questions on the survey would have allowed more time to include detailed comments.

It would be interesting to gather data from administrators to examine their perceptions on creativity and to determine if they encourage their teachers to foster these skills. These surveys might also examine the amount of teacher training that is provided regarding creative practices and the unique ways to approach content instruction. The educational background of both the teachers and the administrators could also have a large impact on the data collected based on whether or not they have had any specific training for fostering creativity in the classroom.

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