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Targeting Creativity Skills for High School Students with Special Needs

Chris Thompson

Action Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Master of  
Arts in Education

California State University Monterey Bay

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Targeting Creativity Skills for High School Students with Special Needs

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### Abstract

Helping students organize their thoughts is an important component of teaching. Including thinking maps in instruction is beneficial and can be used to measure multiple aspects of student learning, such as understanding creativity. Creativity is a unique construct and often not evaluated in schools. This qualitative study examined creativity, which is the collection of the person, the field, and the domain (Ford, 1996), through a rubric, interviews, a sorting task, and teacher logs. A convenience sample including three high school students were selected to participate. The triangulation of the data sources revealed four themes: collaboration with peers and adults, brainstorming makes academic tasks more accessible, tolerating difficulty, and making connections.

*Key Words:* creativity, thinking maps, special education

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## **Targeting Creativity Skills for High School Students with Special Needs**

### **Literature Review**

Creativity is widely acknowledged as essential for social and economic growth, as well as for the well-being of individuals (Collard & Looney, 2014). Many students are being taught to achieve high grades and high scores on standardized assessments (Carlgren, 2013), but there is very little focus on creative learning in the educational system. Teachers are pressured to teach to tests rather than creativity or other skills that are transferable across disciplines and relevant beyond the classroom (Carlgren, 2013). When creativity is taught in school, there are times when it becomes unproductive or it may not be meaningful (Young, 2009). That is, without a clear understanding of the role of imagination and/or creativity in a given task, students may not be aware of the expectations. Furthermore, students are then blindsided with poor grades on assignments and are left feeling frustrated about the creativity process.

In addition to targeting creativity for students, educators need to take responsibility for their own creativity. Educators can lead by example and incorporate more creativity into their teaching as a way for students to learn and think more creatively (Noddings, 2013). This issue is not a simple one, nor is it easy. Bridging the gap between creativity and the educational system feels a little like being at a junior high dance:

Creativity and education sit and look at one another from a distance, much like the boys and girls at the seventh-grade dance, each one knowing that a foray across the gym floor might bring great rewards but is fraught with peril (Smith & Smith, 2010, p. 251).

Students and teachers alike are afraid of failing. Students many times prefer not to try rather than fail. Teachers are afraid of losing their professional autonomy, the ability to make choices on what is taught and how their class is operated. However, no person has succeeded

without feeling uncomfortable or scared at some point. Creativity has to be a valued skill in education; otherwise, students may become the proverbial wallflowers and will not learn fundamental skills that can be applied across disciplines and subjects.

In order for creativity to be valued, there must be an agreement on the definition and constructs that make up creativity. A creative act is the collection of the person, the field, and the domain (Ford, 1996). A creative act is a subjective judgment made by the members of the field about the quality and value of a product. This allows smaller groups within education to assess creativity, determining the quality of the product or act. Even though subjective assessments have the potential to be bias or unreliable, as long as the assessor takes in the entire context including the member, environment, and product, clarity and context will provide the assessor an opportunity to provide genuine feedback.

When educators, no matter the content, assess creativity, their focus should be on the five measurable skills of creativity: *inquisitive*, *persistent*, *imaginative*, *collaborative*, and *discipline* (Claxton, Lucas, & Spencer, 2014). Each creativity skill is broken into more specific strands, very much like a common core standard being broken down into measurable objectives. These creativity skills are not restricted to a specific content, time, or location. These skills measure creativity across all disciplines (Claxton, Lucas, & Spencer, 2014).

The first construct of creativity, *inquisitive*, is the ability to wonder, question, explore, investigate, and challenge assumptions. Next, *persistent*, is the ability to stick with something difficult and tolerate uncertainty. In order for students to develop the creativity skills *inquisitive* and *persistent*, a safety net must be provided to allow students to make and learn from their mistakes without fear (Batchelor & Bintz, 2013). Taking chances is not considered a creativity skill; however, educators need to promote a learning environment that enables students to feel

comfortable with their learning process. The third creativity skill is *imaginative*. When *imaginative*, it is important to play with different possibilities, make connections, and not being afraid to use intuition. The fourth creativity construct, *collaboration*, is a vital skill because students need to be able to give and receive feedback from adults and peers. In addition, students need to be able to work well with others. The final creativity skill is *discipline*. Even though creativity is thought as more imaginative and creative, students also need to have a solid knowledge of a subject or task. *Discipline* is the ability to develop or practice techniques, reflect on ideas, and having pride in one's work (Claxton, Lucas, & Spencer, 2014).

In addition to the aforementioned constructs of creativity, there is a process to creativity. The first step in the process is the ability to see problems in new ways. Second, recognizing ideas worth pursuing. Finally, persuading others of an idea (Sternberg, 2006). The process of creativity should not be considered a creativity skill. The creativity process should be thought of as a pathway for young students and the creativity skills are acquired through experience. Of course, some students will need more time or guided practice along the way. Nonetheless, all students have an opportunity and the access to achieve some level of creativity.

The benefits of teaching creativity seem overwhelmingly positive. However, many students, teachers, and workers are unfamiliar and inexperienced on how to be creative or how to teach or communicate the expectations of creativity skills. Creativity goes beyond a person's intelligence; it connects to a person's motivation, personality, and social-cultural environment (Batchelor & Bintz, 2013). Unless a student is invested or engaged in the subject, he or she will fail to exhibit creativity and will only be motivated to maintain their freedom (O'Hara & Sternberg, 2001). In order for students to be more creative, educators need to educate themselves



on the specifics of creativity and how to appropriately teach the skills necessary for students to thrive across disciplines.

Educators need to be cautious when teaching creativity skills because they should not be assessing the creativity of the student or the final product (Young, 2009). Rather, educators should be assessing the student's use of imagination and creative thinking in solving problems, creating products, or producing an imaginative performance (Young, 2009). An evaluator should ask themselves questions relating to creativity skills to determine a student's use of these skills in their work. Is the student exploring new ideas? Is the student gaining knowledge and understanding of the subject? Is the student using feedback to further creativity? The exploration of the creative process is very personal and challenging. Students deserve constructive feedback on their developing skills and how they can improve instead of focusing on the final product. Educators should focus more on the growth and individual projections of the individual student with regard to his or her creativity skills (Claxton, Lucas, & Spencer, 2014). All work focused on assessing students' growth with creativity skills are theoretical. Researchers have assessed creativity, but never in a way that has only focused on their growth instead of a final product.

Students may struggle developing creativity skills because they are unfamiliar and inexperienced with the process of creativity. Educators face a difficult task trying to teach creativity skills to a wide range of students with a variety of abilities. For example, in my high school classroom, containing twenty-two students, there will inevitably be varying levels of abilities. Finding strategies that promote access for all students is challenging. However, no matter the content or the era, good teaching uses a variety of teaching strategies to accommodate all types of learners.

Today, teachers are using many different types of graphic organizers to help structure assignments and provide access for all students. Graphic organizers can be described as a visual representation of a text allowing the student to make connections between different ideas and concepts (Barton-Arwood & Little, 2013; Gajria, Jitendra, Sood, & Sacks, 2007). First, graphic organizers simplify the writing process and help students with organization (Santangelo, Harris, & Graham, 2007). Without some type of graphic organizer, students with special needs have a difficult time with memory and abstract ideas. When students are provided with graphic organizers, they have shown to help all students visualize larger tasks and reduce the abstractness of assignments for students with lower literacy abilities (Nesbit & Adescope, 2006).

Graphic organizers help students to achieve the final product of an assignment or a task but they do not necessarily provide a clear path to think creatively or critically (Hyerle, 1996). Graphic organizers are useful as isolated strategies, but using a single graphic organizer related to a specific task may not provide the student with the flexibility necessary to link strategies in more complex situations (Hyerle, 1996). Graphic organizers can help students complete a task, but alone may not help students explore their creativity skills.

Thinking maps are a specific type of graphic organizer that can help students transfer skills to other disciplines or subjects. Thinking maps are a pattern language built on common vocabulary and based on rules (Alper & Hyerle, 2011). These rules and established vocabulary make thinking maps more understandable, accessible, and are combined in simple ways allowing for complex thinking (Alper & Hyerle, 2011). Thinking maps support students with their thoughts and provides new routes for thinking. Thinking maps are also helpful for second language learners who struggle with learning the English language, or for students with processing issues because there are a very few words necessary to understand a thinking map.

Thinking maps are visual and when taught correctly, students should be able create their own maps instead of teachers creating the graphic organizer for the student.

There are eight different types of trademarked thinking maps: Circle, Bubble, Double Bubble, Flow, Multi-Flow, Brace, Tree, and Bridge (see *Appendix G*). These eight maps help support the cognitive and creativity process for students (Alper & Hyerle, 2011). A quantitative study was conducted to study how thinking maps could be used as an intervention for students with learning disabilities and students with autism to improve their use of metaphors and idioms (Kasirer & Mashal, 2011). Results from this study indicated that both groups of learners made gains in metaphoric comprehension. Furthermore, the results of this study show that students with mild to moderate disabilities were able to use thinking maps to understand metaphors encountered for the first time (Kasirer & Mashal, 2011).

Thinking maps have shown to support students with special needs to develop high level skills. Yet, the challenge is with how educators evaluate students with special needs who are not on track to achieve grade level skills. One possibility is to use rubrics for standardized assessment results and allow for useful collaborative reflection. However, rubrics that measure creativity fail because educators are typically assessing or quantifying the product rather than the growth of the student during the creative process (Young, 2009). In order for rubrics to provide useful information, Educators need to focus more on the individual progressions and trajectories of students with their creativity learning (Claxton, Lucas, & Spencer, 2014) In addition, using summative creativity scores measured by common rubrics would be difficult and possibly inappropriate to compare (Claxton, Lucas, & Spencer, 2014). So rather than using creativity scores as way to measure and compare to other students, creativity scores should be used to track an individual and identify which creativity skills are being used and the depth at which the

student uses a creativity skill. Finally, creativity should not be assigned a grade or score, simply feedback charting the growth of the creativity skills (Claxton, Lucas, & Spencer, 2014).

Two rubrics have been created that focus on creativity skills. The first rubric, *Rubric for Creative Thinking*, is from a theoretical article (Young, 2009) and was not used to collect data. The rubric laid out a plan to identify student actions in six areas of creative thinking: intellectual skills, knowledge, thinking styles, personality attributes for creative functioning, motivation, and environment (Young, 2009). This rubric was designed to collect a baseline, mid-point, and final assessment. At each stage, the assessor would identify which areas of creative thinking the student was utilizing and at what level the student was performing: using attribute effectively, developing attribute, and emerging attribute. The second rubric, *The Five Creative Dispositions Model*, was applied in research (Claxton, Lucas, & Spencer, 2014) and explored the five core dispositions of the creative mind: *inquisitive*, *persistent*, *imaginative*, *collaborative*, and *disciplined*. The goal was to create a rubric that held relevance within each school subject, but also considered how each creativity skill may be expressed differently based on its content (Claxton, Lucas, & Spencer, 2014). In this study, the assessment tool was used in two separate field trials. The first aimed to show its user ability across educational fields. The second field trial focused on self-assessment by individual learners and to gain knowledge on how the assessment tool could be modified for future use. The rubric assessed which creativity dispositions (skills) were identified and at which level they were being performed: awakening, accelerating, advanced, and adept. The findings of the first field trial were that the assessment tool needed to be simplified. Rather than looking at so many sub-skills, teachers and students would focus on one skills per disposition. For example, *inquisitive* can be broken down into smaller skills: wondering and questioning, exploring and investigating, and challenging

assumptions. The first trial revealed that the assessor found it easier to examine one creativity skill per disposition. The findings from the second trial were that the assessment tool was easier to use. Finally, students who used the assessment tool found it difficult to identify examples of when they had been imaginative.

Many students are challenged to generate answers and to produce work that is beyond basic comprehension questions. Students need to be able to utilize creativity skills to solve problems and to think critically. Thinking maps will support students' creativity skills and the creativity rubric will track the growth of a student's creativity skills.

### **Research Question**

How can teachers use rubrics to assess students' creativity skills using the support of thinking maps?

## Method

### Research Design

Qualitative research is defined as “research whose concern is understanding the context in which behavior occurs, not just the extent to which it occurs” (Marchand-Martella, Martella, Morgan, & Nelson, 2013, p. 294). Creativity can be broken up into five measurable skills: *inquisitive, persistent, imaginative, collaborative, and discipline* (Claxton, Lucas, Spencer, 2014). Taking into account the discipline, the assessor, the pupil, the environment, and countless other variables, qualitative research is the most appropriate methodology to analyze creativity. A qualitative perspective allowed for thorough reflection and in depth analysis of the creativity skills being measured and its benefits to the students. This case study included multiple sources of data, including student interviews, paraprofessional interview, teacher logs, documentation of student work, and assessment of student work measured by a creativity rubric.

### Researcher’s Role

My role as a researcher also included being the main instructor in the observation study. Observations were conducted with my own class. Students were aware of my observations. I conducted interviews with my paraprofessional and several students.

### Participants Selection

Students from a special day class (SDC) mild to moderate Basic English class in Santa Clara County were selected for this research. This class was chosen based on convenience. The names provided for the paraprofessional and students are pseudonyms. This was done to protect the confidentiality of the participants. Subsections below described in further detail the paraprofessional and the student participants.

***Paraprofessional (Ms. H).*** The paraprofessional in this study was in the class since the beginning of the school year, August, 2015. This was Ms. H’s first year as a paraprofessional at

the high school level. Ms. H had two years of experience as a paraprofessional in the elementary level with children who had mild to moderate disabilities. Ms. H was chosen based on convenience.

### **Participants**

Students were selected based on consistency of attendance and willingness to participate. All students had an IEP, was classified with as having a Specific Learning Disability, and received speech and language services. Each student participant had shown varying levels of creativity skills with the support of thinking maps.

***Auto.*** Auto was a 16-year-old sophomore male who had strong verbal skills. Auto was willing to participate and had shown a high interest in learning and reading. Auto was recommended for a general education English class that would include a general education teacher, as well as a resource teacher. However, Auto did not feel confident and asked to stay in SDC English. Auto could develop more self-confidence by exploring and evolving his creativity skills in the study.

***Alfred.*** Alfred was a 15-year-old sophomore male who routinely had a positive attitude in class. Alfred was always willing to participate. Alfred got along with all other classmates, yet preferred to work by himself. Alfred struggled with idioms and sarcasm. Alfred constantly asked questions to clarify assignments and typically wanted to complete assignments as quickly as possible.

***Jan.*** Jan was a 15-year-old freshman female who was reluctant to participate in class. Jan was rarely disruptive but doesn't ever seem to be achieving to her highest potential. Jan required directions to be broken up into small chunks and struggled with assignments with higher order

thinking. Jan gets along with most of her classmates, but had one negative run-in with one of her classmates in the past.

### **Setting**

This study took place in an SDC Basic English classroom with 23 students. The classroom had one paraprofessional and an assigned aid for a student with an intellectual disability. This English classroom took place at a high school located in southern Santa Clara County. The high school had 1,388 students. There was an equal ratio of boys to girls. Eighty-three percent of the enrolled students were non-white. The school was one of four high schools in the unified school district. The school's Academic Performance Index was 732. Fifty-six percent of the students were economically disadvantaged. The overall student performance was performing 34.5 points above their expected performance index. The disadvantaged students were performing thirty points above their expected performance index.

The school was on a "snake" schedule. On Monday and Friday of every week, students reported to all six classes for approximately one hour. On Tuesday, Wednesday, and Thursday, students reported to four periods for approximately ninety minutes. This allowed teachers to have their students for more extended time in the middle of the week. Teachers were also able to see their students four times a week. Therefore, the students in the selected classroom saw the teacher/researcher four times a week for approximately five hours.

### **Materials**

Eight types of thinking maps were utilized: circle, bubble, double bubble, tree, brace, flow, multi-flow, and bridge. All students were familiar and had experience using all types of thinking maps.



The main focus of the learning segment was “The Hero’s Journey.” Access to the “Hero’s Journey Notes” (see Appendix A) was used for students to take notes on the Hero’s Journey before the learning segment. Students had already read “Book 9” and “Book 10” of *The Odyssey* before the learning segment began. During the learning segment (approximately four weeks), students had read “Book 21” of *The Odyssey*. After reading each book, students watched portions of the movie *The Odyssey*. Thinking maps were used to make each story more accessible, to answer questions relating to the Hero’s Journey, and most importantly for students to access their creativity skills. The main focus on the learning segment was “The Hero’s Journey.” Finally, a creativity rubric (see Appendix B) was used to measure the growth of the creativity skills at the beginning, middle, and end of the learning segment. The creativity rubric was modified for the academic level of my students from one theoretical creativity rubric (Young, 2009) and another creativity rubric that was used to collect data on its user ability across academic disciplines (Claxton, Lucas, & Spencer, 2014).

### **Data Collection**

**Creativity Rubric.** The creativity rubric was used to formally assess the growth of creativity skills at three stages: the beginning, middle, and end of the learning segment (approximately four weeks). During each stage, the creativity rubric was used to identify which creativity skills students were utilizing while using thinking maps and completing their main task. At the beginning stage, students used a double-bubble map to compare and contrast which character is more dangerous to Odysseus: Circe or Cyclops? The thinking map was designed to prepare students to write a one-paragraph response to literature essay answering the previously mentioned question in relation to the story *The Odyssey*. During the middle stage, students were asked to create a circle map to brainstorm different topics in *The Odyssey*. From the thinking

map, students created a theme based on one topic. In this case, the thinking map was developed to assist students with creating a theme and to prepare students to write a one-paragraph response to literature essay identifying an important theme in *The Odyssey*. In the final stage, students worked as a group to create a circle map and brainstorm a fake hero. Students collaboratively created a hero and generated as much information as possible to track their hero through all twelve stages of the hero's journey. The hero's journey was created by Joseph Campbell and he believed that all stories relating to a hero composed of twelve stages, as known as a monomyth (Campbell, 1972). Next, students worked individually to create a flow-map to sequence and track three stages of their fake hero's journey. Afterward, students created a Google slideshow with their groupmates sequencing and tracking all twelve stages of the hero's journey for their fake hero.

**Interviews.** Student interviews were split into two thirty minute sessions to help each participant clarify their thoughts and to further help the researcher understand the participants' thoughts. Each session was completed with all three participants.

**Session One.** Session one began with a sorting task (see Appendix C, Appendix D). Individually, participants sorted twenty statements printed on slips of paper. Students placed the slip on a scale of one to nine. The number "one" on the scale represented that the participant did not feel the statement applies to him or her based on their experience in English using thinking maps. "Nine" on the scale represented that the participant feels the statement is highly applicable to him or her based on their experience in English using thinking maps. The sorting task allowed participants to rank all statements with a wide range of possible answers. The sorting task replicated a previously conducted qualitative study measuring mathematical creativity (Schrauth, 2014). After the sorting task, students answered six questions relating to creativity and their

experience in English using thinking maps (see Appendix E). Students answered each question individually with the support of sentence frames. The focus students all struggle with writing and are often provided sentence frames as a scaffold to support oral and written responses. The sorting tasks and responses to the sentence frames were analyzed and prepared for session two.

***Session Two.*** For session two, interviewees met with the researcher in a focus group. Students were asked to further explain some statements they ranked particularly high or low. This was done to further clarify their interpretation of the statements and to better understand the students' thought process. In addition, students were asked open-ended follow questions to their written response answers. Written notes were taken to document their responses.

***Paraprofessional Interview.*** The paraprofessional interview was conducted after the learning segment was completed and after all student interviews. The paraprofessional interview was split into two thirty minute sessions. The interview was split into two sessions so the research could prepare open-ended questions based on the results from session one. For session one, the paraprofessional completed the same sorting task as the students (see Appendix C, Appendix D). The same statements were used in the sorting task, but the paraprofessional was instructed to respond based on her observations of the focus students. After the sorting task, the paraprofessional answered six questions relating to creativity and thinking maps in English (see Appendix F). Each question contained sentence frames to maintain consistency with administration of the measure and to support the paraprofessional's writing. Ms. H also has difficulty writing and is classified with learning disabilities in the areas of reading and writing. Ms. H was instructed to use alternative sentences frames and add to her answers as appropriate.

After session one, Ms. H's sorting task and sentence frame responses were analyzed. For session two, Ms. H was asked to explain some statements she ranked particularly high or low to

determine her interpretation of the statements. Written notes were taken to document her responses. In addition, Ms. H was asked open-ended follow up questions to her written responses. Again, written notes were taken to document her open-ended answers. The questions selected were based on her sentence frame responses and her sorting tasks. Specifically, the questions asked in this study were replicating a previous methodology researching mathematical creativity (Schrauth, 2014). Furthermore, the data collected from the sorting tasks and interviews was used to triangulate.

**Daily Logs.** The researcher's log was used to jot down observations after each class session. The log was also used to document any informal conversations with students or the paraprofessional in class relating to creativity skills or thinking maps. Observations were focused on how students used different creativity skills on a daily basis.

**Documents.** Photographs were taken of all student produced thinking maps used for assessment. The documents included are all three stages of the creativity assessments: beginning, mid-point, and final. The beginning stage which included the "double-bubble map" and a one-paragraph essay. Stage two included a "circle map" and a one-paragraph essay. The final stage included a "circle map" and a "flow-map."

**Data Analysis.** Researcher's logs were documented daily after class was complete. Notes of the observations documented how well students utilized their creativity skills while using thinking maps. To date, there is not a clear framework or model for how teachers can help students utilize their creativity skills; the transcripts were open coded.

In open coding, events/actions/interactions are compared with other events/actions/interactions for similarities and differences. They are also given conceptual labels. In this way, conceptually similar events/actions/interactions are grouped together to form

categories and subcategories. (Corbin & Strauss, 1990). Once coding schema is established, notes will be taken on variations within each of the categories, duration, the quality, and other specifics (Corbin & Strauss, 1990).

Fracturing the data forces preconceived notions and ideas to be examined against the data themselves. A researcher may inadvertently place data in a category where they do not analytically belong, but by means of systematic comparisons, the errors will eventually be located and the data and concepts arranged in appropriate classifications (Corbin & Strauss, 1990). Thus the use of open coding will decrease the chance of bias by allowing the assessor to interpret the data as it presents itself rather than making preconceived assumptions.

### **Credibility and Triangulation**

Charmaz (2005) provides six questions to use as criteria for building credibility in a study. The three main themes in these questions are the depth of the data gathered, the suitability of the data for the categories used to report the data, and providing the reader with enough evidence to support analysis. To address these points, daily logs of students utilizing creativity skills with thinking maps was documented. Categories were made only if multiple observations were made through teacher logs, interviews, and student work measured by the creativity rubric. Furthermore, documented notes from the interviews were used to support the analysis. Daily teacher logs with students and the paraprofessional, interview data, and the creativity rubric, along with student work was triangulated to ensure consistency of the findings.

An independent observer calibrated the validity of the assessments of student creativity skills. First, an independent observer was trained on how to interpret the creativity rubric. After being trained, the independent observer separately assessed student work using the creativity rubric from each stage of the learning segment: beginning, middle, and end. In addition, the

independent observer separately interpreted the sorting tasks completed by all students. The independent observer assessed approximately fifty percent of my collected data with the goal of eighty percent agreement. If there was any discrepancy on the creativity rubric, student would earn the average of the conflicting scores. For example, if a student earned a one, awakening, for the creativity skill *inquisitive*, but the independent observer determined the student earned a three, advanced, the student would receive the score of two, accelerating, the average of the two conflicting scores.

## **Results**

### **Introduction**

The data has been triangulated through several sources. Through open-coding of the data, important themes, topics, and/or skills have been revealed. Themes have only been identified if they have come up in multiple sources of data and will be presented in this section with data from the aforementioned sources used as evidence to support the findings. The following themes emerged from the data: collaboration with peers and adults, brainstorming made academic tasks more accessible, tolerating difficulty, and making connections.

### **Collaboration with Peers/Adults**

In session one of the student interviews, students were asked to respond to questions through writing with the support of sentence frames. Students wrote that thinking maps helped them think more creatively because it helped them generate more ideas to share with classmates: “Thinking maps do help me think more creatively because it helps me think and the more I think the more ideas I come up with for my classmates.” In addition, students suggested that all students could use creativity because it allows them to be social and work with others: “All students can use creativity because it good for them to share and socialize with other people they

work with.” Student participant Jan wrote “Since using thinking maps, my creativity has progressed and improved because my teacher helps me when I need help or when I did not understand them.”

After students answered the structured questions, students completed a sorting task to rank statements based on how they related to their experience with thinking maps. Participants felt that they work well with classmates, use feedback to improve their skills, ask questions, and can work well with my classmates. However, one student participant ranked two statements low that related to collaboration: “I use feedback from my teacher and classmates to improve my skills” and “I work together with my classmates.”

Participants were asked to explain how helping their classmates was a sign of creativity. Auto said, “You get to socialize, talk to classmates, get ideas about subjects, and come up with new ideas.” Next, participants were asked to describe how being social was a sign of creativity. Auto answered, “You have a chance to talk about any topic that classmates have. Get to be more specific...other people can jump in.” Alfred responded by saying, “To help others when they’re in trouble...learn facts, topics, and details.” Up until this point, Jan had been prompted with the questions but did not have a response. Participants were then asked, how can feedback from teachers or students help with your creativity? All participants had a response. First Jan said that feedback can help her come up with ideas. Next, Alfred said that it could help with research and being able to ask for help. Lastly, Auto added that feedback can help add to his ideas.

Each participant ranked differently on the creativity rubric with collaboration. Alfred did not have much improvement with the creativity skill “collaboration.” Alfred earned an awakening (1) for the baseline and mid-point. For the final assessment, there was a discrepancy between the main observer and the independent observer. Alfred was assigned an awakening and

an accelerating. It was decided to split the difference and Alfred earned a 1.5 for collaboration on the final assessment. For Jan, there was some discrepancy on the score she earned as well. However, after splitting the difference on her scores as well, Jan earned a 1.5 for collaboration on the baseline and final assessment. Finally, Auto showed the most improvement with collaboration. At the baseline, Auto earned an awakening. By the final assessment, Auto earned an accelerating for collaboration.

### **Brainstorming Increased Accessibility**

While students responded to the structured questions in the first session, one student participant wrote that “Thinking maps do help me think more creatively because it helps me think and the more I think the more ideas I come up with for my classmates.” This reflects that the participant collaborates, but it also reveals that thinking maps have helped the participant brainstorm and made assignments more accessible. Also, the paraprofessional wrote that “Thinking maps do help students think more creatively because by getting their ideas written down on a thinking map, it helps them learn how to get organized and to be able to put sentence structures together.” In addition, the paraprofessional also stated that thinking maps have helped students’ creativity because of their familiarity with thinking maps and being able to create on their own as opposed to copying from the teacher: “Since using thinking maps, students’ creativity has progressed and improved because they have become use to using the thinking maps and are able to put their own thoughts and ideas down instead of using what the teacher has written...to express what they already know and to add to it.”

One statement was chosen that reflects how brainstorming made assignments more accessible for students: “I am curious and explore different possibilities.” By exploring through



brainstorming, student participants were able to comprehend and apply their knowledge more effectively.

Participants were asked to describe different ways thinking maps have helped them think creatively. Participants responded by saying it helped them communicate in complete sentences, thinking, and creating projects: “Helps you talk about topics in complete sentences.” Next, the paraprofessional participant was asked if there was something that could be done to improve how students explain terms, ideas, or answers in their own words using thinking maps. This was shown to be a weakness through the sorting task. The participant responded by saying, “More prompting...giving ideas before they (students) begin.” Finally, the paraprofessional was asked other than expressing themselves, how else could thinking maps help students think creatively? “Organizing their ideas...thought to paper.” Participants through their unstructured questions expressed in different ways how brainstorming allowed students to feel more comfortable expressing themselves and putting their thoughts in complete sentences.

### **Tolerating Difficulty**

In session one of the student interviews, students were asked to respond to questions through writing with the support of sentence frames. Student participant Auto wrote that “Thinking maps has helped me by coming up with ideas that I couldn’t think of before and I think it’s necessary for students to use these thinking map strategy for their own good of thinking.” Students felt that thinking maps allowed them to process information easily and made higher level thinking easier, which allowed them to tolerate for difficult tasks. Next, student participant Alfred described how thinking maps help students improve their ability to learn: “All students can learn how to use creativity because to learn more about the thinking map and show how they improve themselves by using thinking maps.” Students were able to make more

difficult tasks, ones that require higher level thinking, more accessible and provided ways for students to improve.

Participants ranked three different statements high that related to tolerating difficulty: “I feel that it is okay to make mistakes,” “I accept difficult tasks,” and “I keep trying as long as it takes to understand a problem or a new idea.” However, two of those same statements were ranked low by different participants: “I accept difficult tasks” and “I keep trying as long as it takes to understand a problem or a new idea.” Both of these statements were ranked low by Alfred and the second statement was ranked low by the paraprofessional.

Student participants were asked to identify when students should use their creativity in school. Auto responded by saying, “Should use more maps for challenge...what other ideas can I come up with.” Auto suggested that there should be more challenges with regards to thinking maps.

Tolerating difficulty lands within the creativity skill *persistence*. All student participants were able to increase their creativity skill persistence. Alfred earned an accelerating at the baseline and finished between an accelerating and advanced for the final assessment. Jan earned an awakening at the baseline and earned an accelerating for the final assessment. Finally, Auto earned in between an awakening and accelerating for the baseline and earned in between an accelerating and advanced for the final assessment.

### **Making Connections**

In session one of the student interviews, students were asked to respond to questions through writing with the support of sentence frames. Student participant wrote that “Thinking maps can help students use creativity in other subjects when they need to organize ideas and look at things from a different perspective.” Also, a participant wrote that “Thinking maps can help

students who have a difficult time writing essays. It gives them a sense of direction on where to begin.”

Participants ranked one statement high that related to making connections: “I think about whether my idea makes sense.” However, two participants ranked statements low that related to making connections: “I explain terms, ideas, or answers in my own words” and “I make connections between different ideas.” Both statements were ranked low by Jan and Ms. H.

First, participants were asked to identify how the Hero’s Journey Project allowed participants to think creatively: “Got me more into searching for ideas, getting information and putting it in my words.” Next, participants were asked to describe how looking at assignments from different perspectives could help a student think more creatively? Participants responded by saying that differences increase creativity. It helps one think outside the box and provides different outlooks while allowing students to be more creative.

Making connections falls under the category of creativity skills for *imaginative*. Alfred did not have any change with *imaginative* skills. At all three stages, Alfred earned an accelerating for imagination. Jan improved moderately with imagination. Jan earned in between an awakening and accelerating for the baseline and earned an accelerating for the mid-point and final assessment. Finally, Auto earned an accelerating for the baseline and mid-point assessments and earned an advanced for the final assessment.

### **Discussion**

The purpose of this study was to track the creativity skills of SDC high school students over a four week learning segment using thinking maps as a support. The main themes that emerged from this study were collaboration with peers and adults, brainstorming made academic tasks more accessible, tolerating difficulty, and making connections.

### **Collaboration with Peers/Adults**

The fourth creativity construct, *collaboration*, is a vital skill because students need to be able to give and receive feedback from adults and peers (Batchelor & Bintz, 2013). In addition, students need to be able to work well with others. Being social, or student-to-student academic conversation, is such an important component of student learning. In order for students to process and retain information, they need to be able to communicate and collaborate. Students were able to identify the importance of not only student collaboration but adult collaboration. Most collaboration between students and adults involved oral feedback from the teacher. When students had questions or needed clarification, students were willing to ask questions, a sign of creativity, and were able to use feedback from others, another sign of creativity.

Study participants felt that they worked well with classmates, a sign of collaboration, which is an integral part of creativity (Claxton, Lucas, & Spencer, 2014). In addition, students felt that they used feedback to improve their skills, as well as asking questions for clarification. One important creativity skill was the ability to craft and improve one's work. When students were able to use feedback and ask questions, students exemplified *discipline*, a major creativity skill (Claxton, Lucas, & Spencer, 2014). However, one student participant ranked two statements low that related to collaboration: "I use feedback from my teacher and classmates to improve my skills" and "I work together with my classmates." Alfred often worked alone, not because he was anti-social, but because he preferred to get his task done quickly. Often times, through the daily logs, Alfred was observed getting frustrated when answers did not come easily. Also, when receiving feedback from a peer or adult, Alfred often wanted clarification immediately and always wanted to complete his work as quickly as possible. In this instance, this participant still

had some improvement with the creativity skill *collaboration*. However, all other participants were able to show through the sorting task that collaboration is a valued creativity skill.

Through unstructured questions, participants said that socialization allowed a student to get more ideas from others about a subject, thus allowing the individual to generate more ideas on their own. Again, students saw the value in collaboration and show their understanding that working together with a peer can be more productive than working alone. Next, participants shared that collaboration allowed a student to get more specific and provided the opportunity for different people to jump in with different thoughts. In addition, collaboration allowed students to help their peers when in trouble. Not only have students seen the individual benefits of collaboration, students have reflected on how they have the ability to help their peers when something is not coming easily for their classmates. In the previous data, Alfred had shown through daily logs that he preferred to work alone and had ranked low on statements that related to *collaboration*. However, Alfred had communicated through verbal responses the importance of *collaboration*. Next, the creativity rubric will show that Alfred has had mild progressions with collaboration skills.

Through the assessment of the creativity rubric, the *collaboration* skill had mixed results. Alfred began earning an awakening and only received an accelerating score from the main observer. As mentioned before, Alfred enjoyed working by himself. When receiving feedback, Alfred wanted it immediately. Alfred preferred to work on something quickly and when something did not come to Alfred easily, he would ask questions. Auto had a steady improvement with the creativity skill of *collaboration*. Alfred was observed through the daily logs communicating with classmates daily. For Alfred's final assessment, Alfred was observed constantly providing and receiving feedback from his classmates. Based on observations,

Alfred's *collaboration* skills could be measured as advanced. Finally, Jan showed no improvement with collaboration. Often, Jan was observed through daily logs showing frustration and would often revert to off-task conversation when an assignment became too difficult. However, Jan's best quality relating to *collaboration* was her ability to ask questions. However, the availability of an adult was a concern because of the individualized attention that all students required. When an adult could answer her question, Jan was able to complete the part of the task relating to the question asked.

### **Brainstorming Increased Accessibility**

With the use of thinking maps, there were specific rules and established vocabulary that made thinking maps more understandable, accessible, and are combined in simple ways allowing for complex thinking (Alper & Hyerle, 2011). Thinking maps always allowed for brainstorming before writing. Participants shared that thinking maps helped them think and generate more ideas. Without the use of thinking maps, students struggle with higher level work. The paraprofessional shared that thinking maps helped students get organized and prepared students to put together complete sentences. Thinking maps helped students brainstorm their thoughts and prepare them to write complete, clear, and cohesive sentences. Finally, the paraprofessional added that students were creating their own sentence frames instead of the teacher creating them. Brainstorming had allowed students to acquire and strengthen their creativity skills, such as playing with possibilities, crafting, and exploring different possibilities.

One student participant ranked the statement high that related to brainstorming: "I am curious and explore different possibilities." By exploring through brainstorming, student participants were able to comprehend and apply their knowledge more effectively. Other participants ranked this statement neither high nor low. This statement was probably a difficult

statement to answer. Many students had probably never been asked if they were curious.

Students are rarely asked to be curious. Because only one student ranked this statement high, some may discredit this finding. However, because this skill was rarely valued or mentioned in every day academia, this contributes to support my findings that brainstorming has increased accessibility.

Participants were asked to describe different ways thinking maps have helped them think creatively. Participants responded by saying it helped them communicate in complete sentences, thinking, and creating projects: “Helps you talk about topics in complete sentences.” Students have understand that brainstorming through thinking maps increased their ability to communicate verbally or through writing in complete sentences. One concern coming from the data was that students still struggle explaining terms, ideas, and answers in their own words. The paraprofessional felt that the teacher should give more prompting before the lesson begins. Because my students are all classified with learning challenges, creating thorough and accurate explanations was a major task with or without thinking maps. Their ability to process information to write in their own words will always be difficult for my students. Finally, the paraprofessional was asked other than expressing themselves, how else could thinking maps help students think creatively? “Organizing their ideas...thought to paper.” When using thinking maps, students were more organized and prepared to process information. Even though writing and completing academic tasks was still a struggle, participants have acknowledged that thinking maps have made academic tasks more accessible.

### **Tolerating Difficulty**

This skill was not as much evidenced but more so avoided because of the thinking maps. Thinking maps have a low threshold and a high ceiling (Myers, Nakakoji, Pausch, Resnick, &

Shneiderman, 2005). In other words, thinking maps are basic and are accessible for many students with varying levels of ability, yet provide the opportunity for students to easily advance their skills and to use their thinking map to raise their cognitive level of thinking. Participants responded to structured questions by writing that thinking maps have helped by helping them come up with ideas they couldn't without thinking maps. In other words, thinking maps have provided students an opportunity to feel successful and can actually make higher level tasks feel less difficult. Also, student participants also shared that all students can learn how to use creativity skills because all students can learn and use thinking maps. Thus, thinking maps made academic tasks more accessible and less difficult.

Participants felt that it is okay to make mistakes. When using thinking maps, a comfort was provided that allowed students to explore and consider different possibilities. Both of these skills were vital to the creative process. In addition, participants also felt that they could accept difficult tasks will try as long as it takes to understand a problem. However, these same two statements were ranked low by different participants: "I keep trying as long as it takes to understand a problem or a new idea" and "I consider different possibilities and solutions." Both of these statements were ranked low by Alfred and the second statement was ranked low by the paraprofessional. Through the daily logs, Alfred had been observed working by himself and does not collaborate with his peers very often. Alfred does ask questions, but Alfred typically wants to complete tasks quickly and wants immediate feedback when Alfred is not understanding the task. Alfred should continue to work with partners and small groups to improve his ability to accept difficult tasks, as well as his ability to provide and receive feedback in an appropriate way.

Auto not only accepted difficult tasks, he responded to a question by saying that thinking maps should be used more often to challenge students. The participant also wanted to learn what



other ideas they could generate with other maps. Auto said that some thinking maps were challenging to use in appropriate ways. In hindsight, some thinking maps were very easy to infuse into lessons because of their versatility. However, in the future, individualized assignments should be created to challenge certain students to increase their creativity and to provide academic challenges with different types of thinking maps.

Tolerating difficulty lands within the creativity skill *persistence*. All student participants were able to increase their creativity skill *persistence*. Alfred earned an accelerating at the baseline and finished between an accelerating and advanced for the final assessment. Even though Alfred was observed working alone many times and was visually frustrated when the task became difficult, Alfred was still able to complete his assignments and improved with his ability to accept difficult tasks. Jan earned an awakening at the baseline and earned an accelerating for the final assessment. Jan relied and getting timely feedback from adults. In the future, Jan should be placed with a partner that can help her answer smaller questions about thinking maps. This will help her stay directed on tasks and decrease Jan's reliance on adult feedback. Finally, Auto earned in between an awakening and accelerating for the baseline and earned in between an accelerating and advanced for the final assessment. The results on the creativity rubric probably do not reflect Auto's actual ability to take on challenging tasks. On the student interview, Auto said that he wants to be challenged with thinking and wants to know what new ideas he can generate. Auto, overall, earned an advanced score for his ability to accept difficult tasks.

### **Making Connections**

Student participants wrote that thinking maps can help organize ideas and can provide an opportunity to look at things from different perspectives. With thinking maps, students are required to write the point of view on the top right corner of the map every time. Sometimes,

students have a choice, and other times the point of view is determined by the teacher. For example, when students were participating in the mid-point assessment, students were required to take on the perspective of Odysseus and to determine which character was more dangerous in *The Odyssey*: Circe or Cyclops. This forces students to take on the perspective of another person and allows them to make stronger connections in their thought processes and their writing. Also, a participant wrote that thinking maps can help students have a sense of directions when writing essays. One of the largest concerns when observing through daily logs was participants not being able to make strong connections in their writing. By creating thinking maps that visually lay out their ideas, students are then able to make stronger connections.

### **Sorting Task**

When ranking statements, participants revealed that making connections is a difficult task for them. One participant ranked one statement high that related to making connections: “I think about whether my ideas makes sense.” However, two participants ranked statements low that related to making connections: “I explain terms, ideas, or answers in my own words” and “I make connections between different ideas.” Both statements were ranked low by Jan and Ms. H. Some might infer that thinking maps have not helped students make connections in their writing because the participants still do not feel confident about their skills. However, the students have shown that they have been able improve with the support of thinking maps. Thinking maps prepare students to make strong connections. Without the support of thinking maps, students would continue struggle with their writing.

### **Unstructured Questions**

Participants shared that the Hero’s Journey Project allowed them to search for ideas and to put information in their own words. This skill is a very challenging for students with special

needs and the project allowed them to process, with the support of thinking maps, to make strong connections with their fake hero. Also, student participants shared that looking at an assignment from a different perspective allowed them to think outside the box and allowed them to be more creative. When completing a thinking map from a different perspective, it forces students to make connections in different ways. Eventually, making connections in their own words will become much more accessible and attainable. Next, participants were asked to describe how looking at assignments from different perspectives could help a student think more creatively? Participants responded by saying that differences increase creativity. It helps one think outside the box and provides different outlooks while allowing students to be more creative.

### **Creativity Rubric**

Making connections falls under the category of creativity skills for *imaginative*. Alfred did not have any change with *imaginative* skills. At all three stages, Alfred earned an accelerating for imagination. Alfred struggles playing with possibilities and considering a variety of solutions because Alfred is always focused on completing the task in a timely manner. One area of improvement going forward for Alfred would be to focus on revisions of his work. After completing his work, a peer or adult needs to provide constructive feedback and to model revision skills. This will allow Alfred to improve his ability to make connections. Jan made small improvements with the creativity skill *imagination*. Jan earned in between an awakening and accelerating for the baseline and earned an accelerating for the mid-point and final assessment. Jan struggled making strong connections but showed a small improvement with her ability to make connections. Just like with Alfred, Jan needs more constructive feedback so she can improve her ability to make strong connections. Also, Jan would benefit from more examples and modeling before beginning a task. Finally, Auto earned an accelerating for the baseline and

mid-point assessments and earned an advanced for the final assessment. Auto showed the highest abilities with making connections and also was able to show improvement. This shows that strong students, as well as students who struggled making connections, can use the support of thinking maps to improve their creativity skills.

### **Conclusion**

Creativity skills are an important aspect for educators to address. As evidenced from this study, students learned valuable life skills such as collaboration and overcoming challenging tasks. Furthermore, the use of thinking maps was a productive pathway to make creativity skills more accessible for all students. Thinking maps provided a scaffold for students of varying cognitive levels and provided a high ceiling for achievement while maintaining a low threshold for struggling students (Myers, Nakakoji, Pausch, Resnick, & Shneiderman, 2005).

Assessing creativity skills was very challenging and may not be recommended for educators. However, that does not mean that educators need to ignore creativity. Thinking maps have proven to be a great pathway to make creativity skills more accessible for all students. In addition, for students who are at a higher level cognitively, thinking maps can still be used because they provide a high ceiling for achievement while maintaining a low threshold for struggling students (Myers, Nakakoji, Pausch, Resnick, & Shneiderman, 2005).

Educators across disciplines and grade levels could benefit from studying creativity skills. Researchers in the future should gather larger groups of students with different abilities, age levels, and geographical locations. It would be interesting to study how the growth of creativity skills might be effected by different content areas, geographical locations, or intellectual abilities. Finally, if students are using thinking maps to prepare for a content specific task, my findings suggest that their creativity skills will increase and the students will gain a

higher level of understanding of the content. Thinking maps do increase thinking, but more importantly, thinking maps have provided an opportunity for struggling learners to complete tasks at grade level based on common core standards. Researchers should focus on how thinking maps can increase the accessibility of common core curriculum for students with special needs or for English Language Learners.

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**Appendix A**  
**Hero's Journey Notes - *The Odyssey***

Term	Definition
<p><b>12 Stages of a Hero's Journey</b></p>	<p><b>Stage 1: The</b> _____</p> <ul style="list-style-type: none"> <li>• The audience meets the hero and learns their life, personality, and surroundings.</li> <li>• This is the hero's _____, from which they must leave and _____.</li> </ul> <p><b>Stage 2: The Call to</b> _____</p> <ul style="list-style-type: none"> <li>• The hero is presented with a _____ or opportunity to undertake a quest or solve a _____.</li> <li>• The hero must _____ the familiarity of their Ordinary world.</li> </ul> <p><b>Stage 3: Refusal of</b> _____</p> <ul style="list-style-type: none"> <li>• The Hero has _____ or insecurities and wants to _____ in the safety of their ordinary world.</li> <li>• They want to _____ risking the adventure and the _____ that will result.</li> <li>• They _____ some other influence to convince them, like more disruptions or encouragement of the _____.</li> </ul> <p><b>Stage 4: Meeting the</b> _____</p> <ul style="list-style-type: none"> <li>• The mentor provides _____, insight, advice, training, knowledge, or magical gifts.</li> <li>• The mentor can only go so far with the hero. Eventually, the hero must _____ on their own.</li> </ul>



	<p><b>Stage 5: _____ the Threshold</b></p> <ul style="list-style-type: none"> <li>• The threshold _____ the ordinary world from the special world.</li> <li>• This signifies that the hero has finally _____.</li> </ul> <p><b>Stage 6: Tests, Allies, and _____</b></p> <ul style="list-style-type: none"> <li>• The hero _____ the rules of the Special World.</li> <li>• The hero must learn who can be _____ (make allies and enemies).</li> <li>• The hero needs this stage to test their _____ and _____ as part of their training.</li> </ul> <p><b>Stage 7: The Hero Reaches the Innermost _____</b></p> <ul style="list-style-type: none"> <li>• The innermost cave leads to the journey's heart or central _____.</li> <li>• The hero must now face the greatest _____ and must be fully committed to meeting the challenge they were given in the _____.</li> </ul> <p><b>Stage 8: The Hero Endures the Supreme _____</b></p> <ul style="list-style-type: none"> <li>• This is the central crisis of the story</li> <li>• The hero faces their greatest _____ and risks _____.</li> <li>• The hero is forever _____, for the better.</li> </ul> <p><b>Stage 9: The Hero Seizes the Sword (_____)</b></p> <ul style="list-style-type: none"> <li>• Survives "_____", the hero receives what they were looking for on the journey.</li> <li>• The "_____" comes in many forms (a magical sword, an elixir, knowledge, experience, understanding, reconciliation)</li> <li>• The hero becomes a _____.</li> </ul> <p><b>Stage 10: The _____</b></p> <ul style="list-style-type: none"> <li>• The _____ must accept the road back to the ordinary world.</li> <li>• The hero is pursued by the vengeful forces from whom he has _____ the elixir or "_____"</li> <li>• There are still challenges ahead, but the _____ is now armed and _____ to face them.</li> </ul> <p><b>Stage 11: The Resurrection</b></p> <ul style="list-style-type: none"> <li>• The hero emerges from the special world, transformed by their experience.</li> <li>• The hero _____ their most dangerous meeting with _____ and _____.</li> <li>• The hero is now _____ of their world.</li> </ul> <p><b>Stage 12: Return with the Elixir</b></p> <ul style="list-style-type: none"> <li>• The hero comes back to the ordinary _____ with the elixir, treasure, or some _____ from the special world.</li> <li>• The ordinary world is back to _____.</li> </ul>
<p><b>Words to</b></p>	<p>1. Mentor - a teacher</p>

<b>Know</b>	<ol style="list-style-type: none"> <li>2. Threshold - a starting point for a new experience</li> <li>3. Allies - friends</li> <li>4. Ordeal - a hard or painful experience</li> <li>5. Seize - to take or grab</li> <li>6. Resurrection - to bring back to life</li> <li>7. Elixir - a magical cure</li> </ol>
<b>7 Traits of an Epic Hero</b>	<ol style="list-style-type: none"> <li>1. They have a _____.</li> <li>2. They are capable of deeds of great strength and</li> <li>3. They are great _____ who prove themselves in _____.</li> <li>4. They travel over a vast _____.</li> <li>5. They are considered a national _____.</li> <li>6. They do great deeds for the benefit of _____ not for their _____.</li> <li>7. They face supernatural _____ and/or receive supernatural _____.</li> </ol>

**Appendix B**  
Creativity Rubric

Student Name: \_\_\_\_\_

Check one: \_\_\_\_\_ Baseline      \_\_\_\_\_ Mid-Point      \_\_\_\_\_ Final

Directions: Underline the specific creativity skill cited in the student work and place a check mark in the appropriate box indicating the level of creativity the student demonstrates their skill.

<b>Attributes to Increase Creativity</b>	<b>Non-Existent</b> (No Evidence)	<b>Awakening</b> (Beginning Creativity)	<b>Accelerating</b> (Developing Creativity)	<b>Advanced</b> (Strong Creativity)	<b>Adept</b> (A Role Model)
<u>Inquisitive and Curious</u> - To Wonder and Question - To Explore and Investigate - To Challenge Assumptions					
<u>Persistence</u> - To Gain Knowledge and Understanding of Subject					

- To Effectively Interpret Information - To Tolerate Difficulty					
<u>Collaborate</u> - To Cooperate Appropriately with Classmates and Adults - To Use Feedback to Further Creativity					
<u>Discipline</u> - To Reflect Critically - To Develop Techniques - Crafting and Improving					
<u>Imaginative</u> - To Play with Possibilities - To Make Connections - To Consider a Variety of Solutions					

**Appendix C**  
Sorting Tasks Statements

1. I question answers or ideas.
2. I ask questions.
3. I am curious and explore different possibilities.
4. I gain knowledge about new subjects.
5. I accept difficult tasks.
6. I work together with my classmates.
7. I use feedback from my teacher or classmates to improve my skills.
8. I look back and learn from what I have done right and how I can improve my skills.
9. I consider different possibilities or solutions.

- 10. I make connections between different ideas.
- 11. There is only one right way to work a problem.
- 12. I keep trying as long as it takes to understand a problem or a new idea.
- 13. I make a choice about how I learn.
- 14. Getting the correct answer is the most important part of working a problem.
- 15. I am willing to try something new, even if I am not sure if it will work.
- 16. I explain terms, ideas, or answers in my own words.
- 17. I use different strategies to solve different answers.
- 18. I contribute to the class discussion or share out my opinion/answer voluntarily.
- 19. I feel that it is okay to make a mistake.
- 20. I think about whether my idea makes sense.

**Appendix D**  
Sorting Task

Directions: Read the statement on your slip of paper and place the slip based on how the statement describes you. Complete all statements. Make sure each slip is visible.

Never Sometimes Always

1      2      3      4      5      6      7      8      9



**Appendix E**  
Student Interview Questions

Directions: Please answer each question. If the sentence frame provided does not match the answer you want to provide, cross it out and write your answer.

- 1. What does it mean to learn creatively?

Learning creativity means \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2. Do thinking maps help you think more creativity?

Thinking maps do (not) help me think more creativity because \_\_\_\_\_

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3. Describe how your use of creativity has progressed and improved since using thinking maps?

Since using thinking maps, my creativity has progressed and improved because \_\_\_\_\_

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4. Do you think all students can learn how to use creativity?

All students can (not) use creativity because \_\_\_\_\_

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5. Explain and consider how thinking maps can help you use creativity in subjects other than English.

Thinking maps can help me use creativity in other subjects when \_\_\_\_\_

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6. Is there anything else that's important to you about thinking maps or creativity that you would like to share?

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**Appendix F**

Paraprofessional Interview Questions

Directions: Please answer each question. If the sentence frame provided does not match the answer you want to provide, cross it out and write your answer.

1. What does it mean to learn creatively?

Learning creativity means \_\_\_\_\_

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- 2. Have thinking maps helped our focus students explore creativity skills? Explain and provide examples.

Thinking maps do (not) help our focus students think more creativity because \_\_\_\_\_

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- 3. Describe how the creativity skills of the focus students have progressed and improved since using thinking maps?

Since using thinking maps, the creativity skills of the focus students has (not) progressed and improved because \_\_\_\_\_

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- 4. Do you think all students can learn how to use creativity?

I think all students can (not) learn how to use creativity because \_\_\_\_\_

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- 5. Explain and consider how thinking maps can help students use creativity in subjects other than English.

Thinking maps can (not) help students use creativity in other subjects when \_\_\_\_\_

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- 6. Is there anything else that's important to you about the focus students, thinking maps, or creativity skills that you would like to share?

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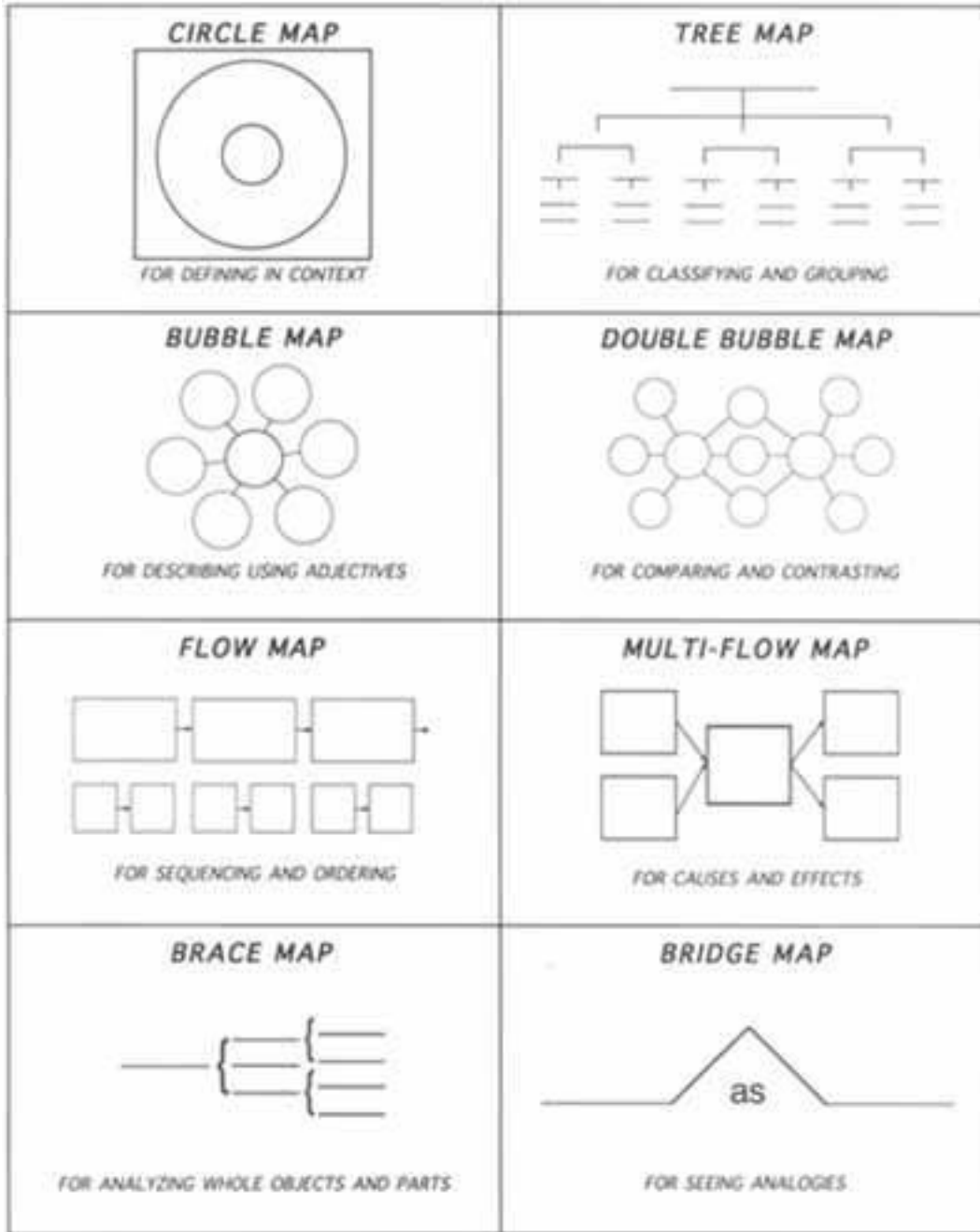
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Appendix H

Jan's One Paragraph Essay on Theme for Mid-point

**Shaping Sheet for Schaffer Body Paragraphs**

Feb 17, 2016

<p><b>IS: Topic Sentence</b> In the story <i>The Odyssey</i>, written by Homer, Never give up on your faith.</p>	<p><b>CS: Concluding Sentence</b> In conclusion... <i>Odysseus</i> did not give up on faith.</p>
<p><b>DE: Concrete Detail</b> For example, "Odysseus and his men next land on the island of Aeolus. The wind king and stay with him a month."</p>	<p><b>CE: More Commentary</b> This shows that... <i>Odysseus</i> was trying to go home but the wind king wind blew them back to island.</p>
<p>(circle)</p>	<p><b>CM: More Commentary</b> This is important because... <i>Odysseus</i> never gives up on his faith on going home to his son and wife.</p>

Appendix I

Jan's Circle Map – Brainstorming Topics, Creating a Theme for Mid-point

Themes in The Odyssey Name: [redacted]  
Date: Feb 11 2016

~~Brainstorm~~ Brainstorm  
Homer, Author Different Topics in  
The Odyssey The Odyssey

Gods/Goddesses  
Greed Patience (Penelope)  
Struggle (Odysseus) Family  
Faith (Belief) Loyalty

Topics

Big Ideas: Pick one Topic ( Faith )  
What do you think the author wanted readers to learn about the topic?  
Never give up on your Faith, no matter how hard it is, because he will make it home.