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A CHOICE BASED ART CLASSROOM WITH THE APPLICATION OF THE MULTIPLE
INTELLIGENCE THEORY AND THE IMPACT AT THE ELEMENTARY LEVEL

A MASTER'S THESIS
SUBMITTED TO THE FACULTY
OF BETHEL UNIVERSITY

BY
KELLY NYHAMMER

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
MASTER OF ARTS IN EDUCATION

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BETHEL UNIVERSITY

A CHOICE BASED ART CLASSROOM WITH THE APPLICATION OF THE MULTIPLE
INTELLIGENCE THEORY AND THE IMPACT AT THE ELEMENTARY LEVEL

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May 2022

APPROVED

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Abstract

This literature review was guided by the research question, “How can the application of the multiple intelligence theory impact a choice based art classroom at the elementary level?” Data collected from this research found increased in student motivation and task engagement when choice and preferred learning styles are used in the classroom. Teacher structure of selection choice and aid in guiding students to build capacity for choice was suggested within younger students. The connection between providing students choice in the classroom and the incorporation of implementing the multiple intelligences has research backing proving that it promotes student engagement and reduces behaviors. With the assimilation of the flipped-classroom teaching model, teachers can assist in achieving choice within the classroom and allowing students to demonstrate their knowledge of the curriculum while managing the differentiation of choice and preferred learning styles. This can be done by providing choice lessons with instructions for students to carry out the learning objective in their selected multiple intelligence learning models with guidance from the teacher.

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CHAPTER I: INTRODUCTION

A Brief History of Art Education

Art education was created during the onset of the industrial revolution. A need was designed to have workers have the skill and ability to create visually pleasing textiles. Benjamin Franklin was an advocate to fill in the gap in the American peoples' education. Art education has made gains and progress while following a swinging pendulum focusing on art-making for creative expression to art for vocation. Art Educators need to consider if art being created for occupation or for a deeper meaning of complex thought and creation within their programs.

In modern art education within schools across the nation, a need for specialized visual arts educators was discovered along with many of the other content-specific areas also known as "specialists." Teachers created content and began to follow state or national standards. Many classrooms followed the traditional model of a teacher leading the classroom in a direction and the students would attempt to replicate the lesson or task. Framework teaching models, such as the Discipline-Based Art Education (DBAE), have visual arts classrooms follow four guiding disciplines: art products, art history, art criticism, and aesthetics to help guide art educators to plan a meaningful curriculum to help students develop artistic skills and critical thinking about their work and the works of others.

Some art classroom models are rooted in lesson instruction. The teachers present a style or technique to the students and ask them for a creative solution within the assessment guidelines or rubric. While some teachers continue this model today, it

led some art educators to question if they are truly asking their students to think and create their artwork. While these methods are appropriate and necessary for portions of art education, allowing the student to think and formulate their creative solutions led to methods such as Choice-Based style classrooms and the Studio Habits framework for teachers to adapt to their visual arts programs.

Choice-Based Art and Teaching Artistic Behavior

Visual art educators across the nation are joining the instructional strategies of a choice-based art classroom or a Teaching Artistic Behavior (TABs) model. It is no secret why these movements have gained popularity as they focus the attention on student lead artwork while helping the students develop critical thinking skills to act and carry out tasks like an artist. Criticism of “cookie-cutter” art, where students copy every step of the art-making process from the instructor with little to no aspect of personal choice or concept conceived by the student, began to form amongst art educators.

Choice-based art education began in the 1970s as a methodology to provide large numbers of students with choices in media and technique. Children worked at centers with their own idea or inspiration found in the art room. Teachers worked alongside, conversing artist to artist, in rich studio settings where play and art-making were often indistinguishable (Douglas & Jaquith, 2018, p. 1).

In a choice-based art led classroom, students are provided with many options for task completion and access to teacher organized centers to collect supplies and carry out creative ideas and solutions. Students are in the front seat of their visual arts education, with teachers acting as support and guides along the process. Teachers can

teach mini lessons or give demonstrations to introduce new ideas and techniques to students, and students decide if they would like to move forward with that skill or work towards another visual goal. Students are thinking and acting like an artist rather than completing the task set out by the teacher that the student might have little or no interest in. At one point, choice-based and Teaching for Artistic Behavior (TABs) were viewed as the same. After “choice” had caught on, it was discovered how it became up to teacher interpretation. Douglas and Jaquith (2018) comment that some teachers provide small choice options such as a student selecting warm colors or cool colors for a project. TABs is a full choice run program that gives examples and outlines for teachers to follow that fit under the large choice umbrella of teaching pedagogies.

There is not a one-size-fits-all lesson or method of instruction that will meet all of the personalities, interests, and curiosity that students bring into a visual arts room. TAB allows students to demonstrate their thoughts and an ability to create original meaningful artwork in the classroom that is student led and student driven. When the teacher respects the child as an artist, the stage is open for creative exploration. When supporting students to build confidence as an artist by recognizing artistic behaviors and providing conditions for their continued development, the students’ confidence increases, leading to intrinsic motivation and artistic growth when repeated over time. (Douglas & Jaquith, 2018). How art teachers use choice in the classroom is up to interpretation and what model, such as TABS, they wish to follow.

Gardner's Multiple Intelligence Theory

Multiple Intelligences are not a new topic, but how teachers are thinking of implementing them in the classroom has evolved over the years. Multiple Intelligences are a person's predisposition to their preferred learning styles or ways to prove their knowledge. "Howard Gardner acknowledges that people have different cognitive strengths as well as different cognitive styles. He believes multiple intelligences are eight different ways to demonstrate intellectual abilities" (Choudhary, 2012, p. 2). Gardner realized that all humans have unique capabilities and skills and geared his focus on how those skills can help unlock human potential.

Today there are nine intelligences that relate to a person's preferences for learning and demonstrating their intellectual abilities. These nine multiple intelligences are 1) Verbal-linguistic demonstrating well-developed verbal skills and sensitivity to sounds, meanings, and rhythms. 2) Logical-mathematical showing the ability to think conceptually and abstractly and have the capacity to discern logical and numerical patterns. 3) Spatial-visual is the aptitude to think in images and pictures to visualize accurately and abstractly. 4) Bodily-kinesthetic is how a person can control one's body movements and handle objects skillfully. 5) Musical is the capacity to produce and appreciate rhythm, pitch, and timber. 6) Interpersonal is being able to detect and respond appropriately to the moods, motivations, and desires of others. 7) Intrapersonal is the gift to be self-aware and in tune with inner feelings, values, beliefs, and thinking processes. 8) Naturalistic is recognizing and categorizing plants,

animals, and other objects of nature. 9) Existential intelligence is the sensitivity and capacity to tackle deep questions about human existence. (Northern Illinois University ,2020).

An educator can use the multiple intelligences for instruction and assessments to help students develop their strengths and help build confidence in the intelligences they are not as strong at. Stanford (2003) found that multiple intelligences offer educators a vast opportunity to creatively adapt its foundational principles to various educational settings. Educators can use multiple intelligence as a guide to help reach a broader range of learners in their classrooms who do not fit into the traditional instruction models, such as verbal-linguistic and logical-mathematical, that many schools use. “Students with learning disabilities often exhibit deficits in verbal/linguistic or logical/mathematical intelligences but show strengths in other areas. Unfortunately, many schools emphasize verbal/linguistic and logical/mathematical” (Stanford, 2003, p. 81). As a general rule, students are likely to have higher levels of intelligence in one or two types and an average or less than average level of intelligence in the remaining types of multiple intelligences (Choudhary, 2012; Wilson, 2018).

Studio Thinking

Studio thinking or the Studio Habits of Mind comprises of eight steps and processes in the art education process. They are the following: develop craft, engage and persist, envision, express, observe, reflect, stretch and explore, and finally understand art worlds. Studio thinking is not a framework for teaching but a helpful tool to guide visual arts educators as a way to observe and think about how they teach

art to their students. By dedicating most classroom time to students working independently within a studio model, the teacher can have differentiated instruction to help personalize student learning across a wide range of abilities in the classroom.

(Hetland et al., 2013, p. 141)

Flipped Classroom

Flipped learning or the flipped classroom is an educational teaching style that helps teachers make the best use of their class time with students. Lectures and presentations are sent to students to be viewed outside of the classroom before learning, and the class time is spent on content with the teacher. The education system is beginning to have shifts in instruction strategies. While working towards preparing students for a digitized world, teachers are beginning to implement flipped classroom methods and other digital tools to reach the needs of their student learners (Hultén and Larsson, 2018).

Research Question

Choice-based arts and TABs offer students the freedom and power to play a role in their visual arts education. The multiple intelligences also allow students to take control of their education. Combining a choice-based/TAB class model with multiple intelligences to help students build confidence and understanding in the visual arts room would benefit students' intrinsic motivation for engagement and task completion. Further gains of knowledge in the above topics lead to this literature review

Guiding Research Question: How can the application of the multiple intelligence theory impact a choice-based classroom at the elementary level?

CHAPTER II: LITERATURE REVIEW

Literature Search Procedures

To locate the literature for this thesis, searches of ERIC, EBSCO MegaFILE, and article-specific searches typed in Bethels Libsearch database were conducted for publications from 1974 to 2020. This list was narrowed by reviewing published empirical studies from peer-reviewed journals that focused on choice in the classroom and the multiple intelligence theory found in journals that addressed the guiding questions. The keywords that were used in these searches included “choice based art,” “Teaching Artistic Behavior,” “choice in the classroom,” “multiple intelligences,” “elementary,” “flipped classroom,” “studio thinking.” The structure of this chapter is to review the literature on choice based instruction in four sections in this order: Choice in the Classroom; Multiple Intelligences Theory in the Classroom; Studio Thinking, and Flipped Classes.

Choice In the Classroom

To truly teach students to become creative thinkers and problem solvers, educators need to evaluate the way instruction is provided in the classroom. Choice becomes a critical factor in helping students develop the necessary skills to think like an artist. In a qualitative study, Thomas (2015) found that students learn best when they are personally invested and involved in the investigation, experimentation, and discovery phase of the learning process. The study had 31 pre-service teachers interview their Cooperating Mentor Teacher (CMT) about how they try to mold their students into lifelong learners. The grade level the teachers taught at ranged from 4th-7th and was

made up of a relatively equal mix of urban, suburban, and rural districts. Among the open-end responses, three main ideas appeared: teacher facilitation of student learning, opportunities for choice, and teacher modeling of thinking, skills, and strategies. (Thomas, 2015, p. 18) She also goes on to say that teachers can actually empower students to become life-long learners when facilitation, modeling, and choices are provided in the classroom. Thomas states, "When students have options, they expand their minds and often generate new, unique combinations of ideas" (Thomas, 2015, p. 19). Providing students with choice in the classroom becomes an intrinsic motivator for additional learning to take place. Thomas (2015) also found that choice should be provided in how students select in which way they will present their new knowledge to increase student motivation. The study concludes with the mention of cautioning teachers about using teacher directed learning because students' brains are not successfully processing or remembering the information. To encourage students to become lifelong learners, teachers should allow students to experience genuine hands-on learning experiences with opportunities of choice with teacher facilitation and modeling (Thomas, 2015, p. 20).

Patall et al. (2010) sought to find if choice can affect intrinsic motivation and whether the apparent provision of choice can consider the effect of perceiving other forms of self-sufficiency on motivation found that students reported feeling a higher level of interest and enjoyment regarding their homework when provided choice on how it was completed. A total of 207 high school students participated in this study, ranging from grades 9-12, with 54% of the participants being female from 14 classrooms

in two urban high school settings. The study was carried about for over four weeks. During the second session, homework-choices trial operation was started. Students were randomly selected to determine who would be assigned and who would have a choice of the homework assignment. The study made sure that an equal number of students in both conditions completed each homework assignment option for every assignment given. The study found that the same students scored higher on their end unit test when a choice was present compared to their end unit scores when a choice in homework competition was not an option. The students also have a tendency to complete more of their homework assignments when a choice is provided (Patall et al., 2010). Providing options for task completion allows students to become personally motivated to complete the learning outcome. They become self-driven and are allowed to make personal connections with their learning, resulting in a significant increase in the effort exhorted on the task completion by the student. The intrinsic motivation is increased, and the student takes greater pride in their school work.

Looking to see if learner choice and task engagement had a connection with student retention and motivation, Myrow (1979) provided students with two different assignments to complete, one assigned and another selected by the student. In nine English classes, approximately 200 eleventh- and twelfth-grade students participated in the study over the course of four days during regular class time hours. The independent variables considered for this study were; Level of Choice, Order of Choice, Immediate Testing, and Verbal Ability. Some of the students were provided a choice in the assignment on Day One and then provided an assignment on Day Two by the teacher. If

students were given an assignment by the teacher on Day One, they were given choice a on Day Two. It was concluded that providing students with the freedom to choose their topic had significant effects on the learner's attitude towards the lesson, and showed that the student spent more time working on their assignment. At the same time, the study found that providing students with choice improved student motivation but did not appear to have a major impact on student retention of the new material. Myrow (1979) expresses that certain limitations, such as the multiple choice model of the test could be contributing to these results. In addition, while the students were provided choices on content in one of the tests, the pool to select content from was still limited, which could also have potential influence on unnoticeable improvement in retention scores.

Making modifications to a lesson to meet the learning needs of the student is a common occurrence in the classroom. Adding in the option of student choice can help motivate students with learning difficulties or behavioral concerns. Hua et al.'s (2014) study on the effects of assignment format and choice for task completion suggests that identical classroom academic tasks using different presentation formats may affect the student's preference and choice of such tasks. The study took place in a normal classroom setting, where a special education teacher was asked to select students who have a history of lower performance scores in mathematics. Three fourth grade students were chosen to participate based on these nominations. It was noted by the teacher that these students have all displayed regular off-task behaviors during independent work time. There were three experimental conditions the students worked

under to complete their assignments, all lasting five minutes. Providing choice in academic interventions or reinforcement options can help increase the benefits and effectiveness of independent academic completion of assignments for the student. They also suggest that the efficiency and usefulness of providing students with choice-making depend on the relative preference levels of the choice options by the student. In turn, providing choice may not be as effective to increase the student's performance if the student is indifferent to the choices that are provided by the teacher (2014). Collecting data on students' interests and preferred learning styles might help narrow this potential discrepancy in motivating students to complete tasks they find undesirable.

How choice and differentiation are used in the classroom can be influenced by the teacher's experiences and preferences. Dunn and Darlington (2016) conducted a study based on discovering the views of GCSE Geography teachers and their personal experiences with differentiation in the classroom to help aid in the development of teacher resources. Participants ranged between 5-37 years of teaching experience and taught at schools with a variety of budget provisions from different parts of England. This qualitative study analyzed findings from 16 teachers in two different focus groups in semi-structured meetings to collect the data. The findings of the study helped the researchers to consider what methods of differentiation were currently used; the challenges teachers face, what influences are there on the teachers means of differentiation, and the impact the teachers predict with the removal of tiering in GCSE Geography will have in regards to their differentiation practices. The participants expressed a wide range of differentiation methods being used through setting, lesson

design, and classroom practices. It is noted in the study that while participants expressed knowledge of different types of differentiation, not all methods were necessarily used by each individual. Overall, the study highlights many methods of differentiation GCSE Geography teachers can use in the classroom. There are positives and negatives to each type of approach, and teachers will be faced with the challenge of navigating those while the limitations of the study's results are based on a small group of teachers' personal opinions on the use of differentiation in the class. Dunn and Darlington comment, "Pressures on teachers for them to have their students achieve particular grades and accountability measure mean that difficult decisions need to be made regarding the way in which teaching takes place, and differentiation strategies are employed" (2016, p. 356). The study suggests revisiting the issue by reviewing the data results of the test scores when students have taken the examinations that have had tiering removed in replace of differentiation methods.

How course instruction is provided and the effects it has on student motivation and learning were the main focus of Komarraju and Karau's (2008) study. By examining the results from 172 undergraduate students from a large, public, Midwestern university who participated in receiving course credit or extra credit points, Komarraju and Karau's goal was to create an understanding of how the mix of instructional technologies used to instruct students impacted their motivation, learning, and performance. Komarraju and Karau (2008) specifically focused on the relationships that course website usage, traditional lectures, and active learning techniques had with different components of academic motivation. Their research was part of a larger study

done that examined academic motivation in relation to a range of personality and situational factors. Komarraju and Karau (2008) created scales assessing the perceived values of course websites, active learning, and traditional lectures to measure the students' perceptions of the different instructional techniques. Additional items such as students' access to computers, computer usage, frequency, and type of course website usage were assessed for the study. The students involved in the study were asked to complete the Academic Motivations Inventory (AMI), which consisted of 90 items and included the 16 dimensions of academic motivation. To make the study a bit more practical and condensed, these were broken down into three key components of engagement, avoidance, and achievement. The authors wanted to analyze the relationship between instructional strategies and the newly condensed three dimensions of academic motivation. Initially, data regarding students' access to computers and usage was evaluated, and it was found that a large majority of the students had access to a computer and had used a computer to communicate with an instructor and fellow classmates. The first review discovered that 93% of students felt websites were a useful tool, and 91% commented they would like to see more of their classes make course information available on websites for student use. Komarraju and Karau (2008) found engagement was positively connected with all three instructional techniques. Student achievement motivation of traditional lectures and course websites had a positive relationship. However, achievement motivation did not have a meaningful connection with experiential exercises. Data collected found no meaningful relations between the three instructional techniques and student avoidance. (Komarraju

& Karau, 2008, p. 76). Komarraju and Karau (2008) checked to see if gender played a role in the outcome of the data, but no significant results came from the analysis. The results of the study offer strong evidence that various teaching techniques are highly associated with each student's personal academic motivation. Komarraju and Karau (2008) suggest if a teacher is able to understand the connection between instructional techniques and various elements of academic motivation, they might have a higher chance of increasing student involvement, retention, and application. Engagement had a strong connection to each of the three instructional techniques, with the perceived value of websites explaining the highest inconsistency. In the case of students who are at a higher chance of avoidance, there was no significant association with any of the instructional techniques. With a positive connection to both traditional lectures and course websites, achievement had no relationship with the perceived value of active learning. Komarraju and Karau (2008) noted some limitations that might be addressed in future studies, including that AMI had low to moderate levels in internal consistency of several subscales causing those results on specific subscales to be considered tentative. The study also suggested that more comprehensive measures could be made to address further findings of instructional techniques. In summary, they concluded that students preferred style of instructional techniques will be different based on each student's personal preference of learning style. Teachers can make themselves aware of their students' preferred learning styles and try to maximize how they present course material to maintain a higher level of student academic motivation in their classrooms.

If they are able to accomplish this, teachers can enhance student engagement and achievement in the classrooms.

A phenomenological study focusing on teachers' beliefs about instructional choice in the classroom evaluated the responses from 36 practicing teachers. Flowerday and Schraw (2000) wanted to examine this topic due to little empirical research on the topic and the frequency it was referenced by pre-service teachers. The purpose of the study was to shed light on the teachers' experiences and personal beliefs about choice in the classroom in hopes of promoting further research on the topic. Asking teachers to share their personal insight and experience, the goal of the study was to have teachers describe in their own words why types of choices they offer in the classroom, how they decide when to provide choices, and to whom, as well as why they offer choice. Flowerday and Schraw (2000) used the qualitative method of phenomenology for this study because there was no existing theory of choice, having their results be used to build a theory that can later be tested.

The study consisted of three stages. The first stage was semi-structured interviews with the participants. Second, the participants were asked to write a written response to seven questions that were followed by in-depth one-on-one interviews with the participants using the same questions. The final stage had three teachers do member checks that reviewed and critiqued the final results. There were eight teachers for a pilot study and a total of 36 participants in the main study. All of the participants were classroom teachers attending summer classes at a large Midwestern university. All participants had at least one year of teaching experience. All teachers in the study held a

bachelor's degree, and about a third also had their master's degree. The teachers came from both rural and urban school settings with teaching experience ranging up to 29 years in the classroom. Roughly 60% of the participating teachers were female, and 40% were male.

In order to connect the data, Flowerday and Schraw (2000) compared the results from the initial eight candidate interviews with the 36 responses from the main study. They found consistent patterns in the responses. They took both written and verbal responses from the participants and found steady patterns across the verbal and written data collection. Flowerday and Schraw's (2000) thematic analysis collected data from the thirty-six teachers' responses to each of the seven questions on how they offer choice within their classroom. Three categories were created and used to group teacher responses based on how choice was used. The three categories became types-of-choice, criteria-for-choice and rational-for choice. Type-of-choice is the six areas of choice the teachers frequently provided to students. The criteria-for-choice category is the attributes and characteristics of students and teachers that determine choice. The final, rational-for-choice category is based on affective, behavioral and cognitive reasons for giving choice. From the data collected, Flowerday and Schraw (2000) found that many of the teachers reported they allowed students to experience choice in different forms of assessment, such as essay test questions, exams, and final projects. The majority of teachers stated they provide more opportunities for choice with older students more frequently, while with younger students, many felt more structure was needed in order for students to be successful. However, within this study, four of the 36

teachers expressed the opposite view that younger students should be provided with more opportunities for choice to teach them how to be independent thinkers. Choice within social arrangement was evaluated within this study. Teachers expressed options for students to work in groups or pairs, seating arrangements, or picking group members for collaborative projects. Flowerday and Schraw (2000) noticed how the teacher's classroom management style could affect the use of choice in the classroom. They state, "Teachers who value student autonomy were most likely to support the use of choice" (p. 638). However, they noted that all teachers believed that choice could be implemented effectively in all classroom settings, even tightly controlled classrooms. They also found that teachers felt students who are allowed to make choices in the classroom put more energy into their learning and ownership to participate.

When teachers were asked about their cognitive rationales for choice, many reported they felt students learn more when a choice is offered, though this is not proven with quantitative data. The study's summary concludes with two main reasons teachers provide choice. First, the participants felt choice provides students with an enhanced classroom experience. The second, which wasn't commonly discussed, the choice was provided as a reward for effort and good behavior in the classroom. Teachers commented that they provided more choice as an incentive for students. Flowerday and Schraw (2000) noted the teachers pointed out that choices in the classroom resulted in an increase in student engagement, a sense of control, and motivation. They found these reports to be backed by a number of empirical studies based on self-determination. It was also noted that the more experienced a teacher

was, the more choice appeared to be provided in the classroom. Teachers reported feeling they needed to have more control over the class setting in their initial teaching experience and provided more choice with experience. This is in part to the additional time and effort needed to administer the different aspects that correlate with various choices provided in the classroom. Flowerday and Schraw concluded with the limitations of their studies and suggestions for further research. They noted many of the claims teachers made in their study could be validated with empirical evidence on the student gaining a positive effect on engagement, satisfaction, and empowerment. However, there is very little evidence supporting the claims that students gain more cognitively from choice. It was also mentioned that a teacher's use of choice is related to their own teaching self-efficacies. Flowerday and Schraw (2000) also note a need for a stronger understanding of the relationship between choice and interest for students.

Cordova and Lepper (1996) looked into how student's curiosity, interest, and self-determination impacted their intrinsic motivation toward learning. The study used two strategies to adjust qualities of the math game, such as student association with activity by adding choice in characters or objects with personal features, or the ability to choose the quality of the game set up itself. Cordova and Lepper (1996) gathered information from 72 students in fourth and fifth-grade classes that were enrolled in two private elementary schools in the San Francisco Bay area. From this group, students were randomly assigned within gender to one of five conditions to play the math game. 1) generic fantasy with no choice added, 2) generic fantasy with choice added, 3) personalized fantasy with no choice, 4) personalized fantasy with choice, and 5) no

fantasy – control group. Two of the students did not get to complete the study because of transfer to another school, and their data was removed from the study, resulting in the data collected compiled from 70 elementary students ages ranging from 9 to 11 years old. Students at these two private schools have had previous experience working with computers, but a review of the school’s curriculum showed that the students had not had experience with these particular programs.

The main premise of the game was consistent throughout the five conditions. The student played against the computer, and the first to reach 50 at the end was the winner. All game options had “target zones” every ten spaces that helped players advance further in the game if landed on, and all games had two “short cuts” with equal advancement placed within the game. During a turn, three numbers between one and five were randomly generated by the computer, and the student was then tasked with trying to combine these numbers using addition, subtraction, multiplication, division, and parentheses to see the number of spaces the player would advance.

The first session was performed as a pretest, and the students were told the experimenter was simply interested in seeing how students learn with computers. Efforts were made to make sure students did not feel they were being evaluated during this process while the team worked to see how the new education software program worked. The students also completed a short questionnaire about themselves, such as nicknames, birthdates, friends, and interests. Sessions two through four were experimental sessions, and versions of the game were randomly assigned to students. Session five was held one week after the last game session, and students were tested on

their knowledge of the order of operations and the use of parentheses in arithmetic expressions outside of computer games(1996, p. 722). Students in all conditions were asked to answer how much they enjoyed playing the computer math game using a 7-point Likert scale. Cordova and Lepper (1996) found the students who played the unembellished, non-fantasy version of the math game had significantly lower levels of learning compared to students who had personal data or embellishments added to the game. In addition, they also found that students who had personal data mixed into the game demonstrated higher levels of learning compared to the students who played the generic fantasy version of the game. The most significant data were provisions of some degree of choice over various instructional irrelevant aspects of the game also had beneficial effects on student learning, as children in the choice conditions scored higher on the tests than those in the no-choice condition (1996, p. 725).

In addition to the higher scores, students who played the version of the game that had some element of fantasy or choice elected to play harder or more challenging versions of the game compared to students who played the non-fantasy version. These students also exhibited higher levels of perceived competence in the skill set than those in the non-fantasy group. Cordova and Lepper's (1996) study demonstrates that student intrinsic motivation for learning activities increases when aspects of choice or personalized components are mixed into the curriculum.

When researching how choice impacts instruction and student learning, it is important to consider the students' perspectives. Doss (2018) was interested in researching what students thought about choice through flow experiences and creative-

problem solving. From an eighth-grade honors language arts class, thirty students were selected for the study, ages ranging from 12 to 14. It was noted that the level of motivation varied between students. Doss (2018) used an action-research method for this study to allow the researcher to evaluate and reflect during the course of the practice. Her data was collected with observations, discussions with students, student reflection, and interviews with students both in groups and individually.

The study lasted a course of thirteen weeks, and students assessed their progress and analyzed its structure with weekly emails to the instructors as well as using Google Forms to answer questions about their engagement during the class time provided. For the project, students were instructed to pick an idea or topic they were interested in and wanted to explore and ask questions that could not easily be answered. The purpose of Doss' (2018) study was focused on students' intrinsic motivation, so teachers only graded process papers, written reflections and the bibliographies students produced during the unit. When it came time for the final presentation of the unit, students were provided a choice again on how they wished to present their findings, such as educational speeches, hands-on demonstrations, or student made videos.

The results of the data collected showed students expressing a high level of intrinsic motivation to research their topics. They felt motivated by their personal choice in the unit and noted that they explored the topic outside of the school day. "Their enthusiasm was apparent in the classroom as they inquired when they would have time to work on the project every week and through conversations outside of the classroom

where they shared details with friends” (Doss, 2018, p.117). While working on their projects, students expressed their enthusiasm to dig deeper into the unit and described being in a *flow* due to their personal interest in the topic. Students in this study expressed a high level of participation and engagement in the unit. Allowing students to have a choice made the opportunity to hold the students’ attention during the unit. This leads to the result of possible higher commitment to the topic and higher quality end results from the students. Students were able to explain how they overcame any issues or obstacles and used creative problem solving during many of the stages it took to complete the project. While motivation levels varied amongst students in the class, it was noted that many of these students were already highly motivated to begin with. Nonetheless, Doss’ (2018) results show how important is it for teachers to provide students with choice in their classroom. Responses collected from students showed an appreciation for being a part of the decision-making process (Doss, 2018, p. 121). Doss ends by mentioning how providing authentic opportunities in the classroom can help lead students to improve in skill areas they will need later in life to solve local, national, and global issues.

Providing students with multi-level challenges set up as choices, allows students to have the freedom to explore and learn while working on completing a task or challenge. Chin et al. (2016) conducted a study using “choicellets,” online games, to serve as interactive assessments of learning to assist in students’ critical thinking as well as feedback on projects. In each game, there are multiple avenues for students to reach their goals. “The free-choice principle makes it possible to determine how and whether

players choose to learn when they are not being forced or coerced by the structure of the environment” (Chin et al., 2016, p.197). The study had two main focuses, 1- to see if student choices in the game aid in predicting their learning from the game, and 2- does the curriculum teach the students to choose more resourcefully regarding data literacy and visualization skills?

Students involved in the study were in a 10th-grade biology class from a California public high school. One of the teachers had volunteered to participate in the pilot study with her three classes. The study took about three weeks, with control groups from the teacher’s remaining classes as well as two classes from the school’s other biology teacher. Two weeks after the last day of instruction, the students were invited to play a Storylet game for about ten minutes during their regular class-time. At the end of the game, students participated in an assessment based on what they learned from the game. The assessment was based on five questions that targeted factual content and design principles from the game. Chin et al. (2016) predicted that both groups of students would score similar results on the factual questions, but the Data Viz students would score higher on the graphic focused questions.

Data from Storylet shows that students’ choices do relate to their learning outcomes in content and graphic-focused questions on a post-test given to students, including the in-game learning measures that students were exposed to (Chin et al., 2016). In the second portion of the study that focused on the impact of the curriculum used and its aid in helping students choose more effectively, there was no significant difference between the control and data visualization students, resulting in any

differences between the groups were likely not a result of students' overall time with the Storylet task. Results indicate that the curriculum successfully helped aid students to better understand graphic principles and, more importantly, led students to better extract the main message of the stories. This success in understanding the graphic principles did come with somewhat of a forfeit of the students' factual learning compared to the control group. Possible suggestions as to why this might have been the case could be based on the Storylets layout and design. While the Choicelets provide success in areas of student learning, the researchers hope to further investigate these design issues by repeating the classroom experiment and conducting a more in-depth interview with students as they play.

In two studies, Flowerday and Schraw (2003) looked to see the impact choice has on cognitive task performance and affective engagement for student learning. Two hypotheses about choice were created. The enhanced cognitive engagement (ECE) hypotheses predicted that choice would increase students' cognitive engagement and learning because the students would be more motivated to learn. The second hypothesis was based on enhanced affective engagement (EAE) estimated that choice increases positive effects on student's attitude, satisfaction, and effort (Flowerday & Shaw, 2003).

The first experiment was made up of eighty-four college undergraduates in a required class. The experiment ran on a 2x2 between-subject study (ANOVA) design made up of a task condition that included essay and crossword puzzle tasks, as well as a choice condition that provided a choice and no choice option for the task. Materials for

the experiment were comprised of a 13-item Desire-for-Control Scale; a 900-word test titled "The Book of Sand," a 10-item interest questionnaire; an essay booklet in which participant of the study explained their response to the text or a 72-question crossword puzzle; and a 12-item attitudes checklist (Flowerday & Schraw, 2003, p. 209).

The data results were broken down into four sets. Set one compared the participants' desire for control and interests within the four different groups and showed no significant difference in this phase of the experiment. Set two went on to contrast the essay responses between the two groups and found the test did not provide meaningful results between the groups. Set three compared the results from the crossword puzzle between the groups and also found no meaningful difference. Set four reviewed the scores from the 12-item attitude checklist between the four groups. This test found some variance in student responses between the groups.

Overall, experiment one concluded with four main findings. The first found that student interest played a role in what tasks were chosen by the individual when they were given a choice. Participants with low interest were more likely to opt for a new task. The second finding from the experiment found that choice did not promote the participant's cognitive engagement in either the essay or the crossword puzzle activity. However, a third finding shows that choice had some positive impact on participants' effective engagement by being able to relate it to personal experiences. The final finding from the first experiment was participants in the no-choice group reported working harder on the tasks, even though they had less interest in the story compared to those who participated in the choice group. In experiment one, Flowerday and Schraw (2003)

tested to see if choosing between two different tasks would have an effect on the participants' cognitive or affective engagement. The data results show there were no meaningful differences for this portion of the study.

In the second experiment from this study, 87 college undergraduates participated in two independent group design that was made up of a self-paced and researcher paced structure. The materials were the same as in the first experiment with the revision that all participants took a multiple-choice recognition test and the essay task. Participants were randomly assigned to a self-paced group or the researcher paced group. Both groups completed the same material in the same order and had the same diffractions. The difference between the groups was the pacing of the materials. Two main outcomes came from experiment two. The first was self-pacing led to considerably less study time compared to the research-paced group, which also resulted in lower cognitive results. The second outcome was that choice led to a decrease in participant learning. However, there was an increase in effective engagement. "Our findings support the enhanced affective engagement hypothesis, which states that even short-term choices can increase positive affective response" (Flowerday & Schraw, 2003, p. 214). The results from these experiments lead Flowerday and Schraw to encourage further research by consideration to different variables that can play a role in choice. Flowerday and Schraw (2003) suggesting researching the impact of short-term choice compared to the effects long-term choice, and believe that long-term choice could impact cognitive processing in such a significant way that short-term choice would have a difficult time producing similar results. They conclude by suggesting that a third

consideration is to research the impact of choice on students of different age as most studies have involved students in college (Flowerday & Schraw, 2003, p. 214).

Providing choices to students can help students select items that are geared towards their personal interests and/or learning styles. However, Assor, Kaplan, and Roth (2002) would say that choice is good, but relevance is excellent. The researchers hypothesized that children and early adolescents would be able to tell apart two worldwide types of autonomy-affecting instructor behaviors in the classroom; autonomy-enhancement and autonomy-suppression.

Assor et al. (2002) gave questionnaires to a group of 862 Israeli-Jewish 3rd – 8th-grade elementary school students ranging in age from 8-14. The students were from three different schools with a population that was mostly middle and lower class. The questionnaires assessed the student's perceptions of their main instructor's behaviors, the students' feelings while learning in the main instructor's classroom, and their perceived behavioral and cognitive engagement in the subjects/classes taught by the main instructor. The results from the hypotheses were measured with two Smallest Space Analyses (SSA) that were used to review the students' opinions of autonomy-affecting teacher actions. The hypothesis was able to show that children and early adolescents are able to distinguish six kinds of autonomy-affecting teacher behavior.

Assor et al. (2002) suggested that a teacher who provides students choices, avoids intrusion and tolerates criticism may intend to create a learning environment that fosters students to realize their personal goals and interests. However, they also note that many of the students did not feel this creates a space to help their

independence because they are not able to make the connections between their interests and school work. This could also be due to the fact that some students have not developed strong personal goals or interests yet and are unsure of what to do when this wide-open space is provided. To aid students who might be in this grey area it suggests the primary task of the teacher is to try to get to know their students' and the students' authentic interests and goals to help them make connections. Teachers are also able to create lessons based around their students' interests to increase motivation. If a student does not have a definitive goal based on personal interest, the teacher can help guide the student to create one (Assor et al., 2002. p. 273). A teacher can create differentiated instruction within a unit to provide choice with guidelines.

When looking at two different classroom teaching models, Chad-Friedman, Lee, Liu, and Watson (2019) sought to find the effects those types would play on elementary students' intrinsic motivation, creativity, artistic skill and realistic drawing abilities. The study had 83 third-grade students from two different schools within the same district complete two art lessons and an intrinsic motivation survey. Each school had one art teacher and three sections of third grade, with one of the teachers fostering a choice-based learning environment and the other in a teacher-led classroom structure. Each teacher felt their preferred style of instruction was the best method to improve student learning and creativity. Students at both schools had art once a week for 50 minutes.

It was expected that students in the choice-based program would have higher intrinsic motivation and creativity than the students in the teacher-led program, but it did not predict a difference in the students' artistic skill level to be present. An

additional hypothesis was suggested that an individual needs to practice and develop a certain degree of skill before they are able to have a high level of intrinsic motivation and creativity blossom.

During the observations, students in the choice-based class selected what type of art they wanted to create in a given class period, which provided them the opportunity to develop autonomy and individuality in their art making. Students in the teacher-led class followed the same art lesson following the teacher's directions. In regards to the first question asking about the effects of teaching methods on intrinsic motivation, creativity, artistic skill, and realistic drawing ability, they used a quasi-experimental, factorial design, in which the two classroom styles were the main independent variable, while intrinsic motivation, creativity, general artistic skills, and specific, realistic drawing skills were the dependent variables (2018, p. 486).

For the second question of the study, Chad-Friedman et al.(2018) used a regression design to see if intrinsic motivation was a predictor of creativity, artistic skill, and realistic drawing ability, which had the level of intrinsic motivation be the main predictor variable with the results being creativity, artistic skill, and realistic drawing ability.

Students were given a nine question survey asking them to assess their personal motivations to pursue and engage in the visual arts and tap into real-life experiences. Students' visual creativity, general artistic skills, and realistic drawing skills were evaluated over two 15 minute drawing assignments, one free draw, and one observation drawing activity. Students were told they could free draw anything they

wanted with the provided materials. After, students were given a form to use as their realistic drawing observation prop and told they could add additional items or background if they wished. Both free draw and observation drawing were scored using the Consensual Assessment Technique (CAT) on the student's creativity, artistic skill, and realistic drawing ability. The test showed slight differences between the two art programs in artistic skill and realistic drawing abilities. Results of student artwork showed higher scores in artist skill and realistic drawing ability in the teacher-led program compared to students in the choice-based program. There was no meaningful score difference found in creativity between the two programs. The free draw task produced higher levels of creativity in all students across both programs compared to the observational drawing task. "Our study suggests that in art education, at the elementary school level, increased skill development through more structured art activities may be necessary before creativity can be affected to any great degree" (Chad-Friedman et al., 2018, p. 489). Younger students benefit from the teacher-led program to help build up their knowledge and background to be able to be more creative freely at an older age. The findings from this study also suggest that a teacher-led classroom that focuses on skill development can help prepare students for higher levels of intrinsic motivation.

Being told what to do, when to do it and how it should be done is something students can experience at a young age when they enter a learning environment. Looking to see the effect of how different levels of choice can play a role on a

preschooler's intrinsic motivation and creativity, Amabile and Gitomer (1984) conducted a study reviewing the preschoolers' use of material choice for a collage project.

The preschoolers were broken into two groups, choice of material and material selected by the researcher, and then asked to create a free choice collage. Students in the choice group were shown ten baskets of material items and were allowed to select five to use during their project. Students in the non-choice group saw all ten material baskets as well but were given five selected by the researcher. To keep materials constant for judging purposes based on student creativity, each student in the non-choice group was given the same five baskets that a student in the choice group had selected. All children in the experiment had about ten minutes of work time but this was not expressed to them at the start of their work time. If students were still working after nine minutes, it was suggested they finish up their work.

After the individual collage projects from the children, the remainders of the materials were placed out for student access for several hours to measure any following intrinsic motivation to pursue the collage activity within the preschool students during choice time.

Each of the 28 preschool artworks was individually judged on creativity by a panel made up of eight artist-judges. Results from the experiment found the preschoolers in the choice group scored higher levels of creativity compared to those in the non-choice group. Also, it was noticed that children in the choice group spent more time with the collage materials again during their free-play time compared to children

who were in the non-choice group, suggesting choice played a role in the child's intrinsic motivation after the activity.

In a study focusing on the use of instructional choice in a first grade classroom, Lane et al. (2015) started with a declaration that instructional choice is a simple strategy teachers can use in the classroom. It needs little preparation and is easy to execute for the teacher. Instructional choice also supports content instruction in the classroom (Lane et al., 2015, p. 473). The study has three guiding questions. The first was to see if the instructional choice could be conducted with integrity by site-level general and special education teachers with limited university support. The second guiding research was focused on how the two types of instructional choice, across-task and within-task, and how it affects student academic engagement. The last focus of this study was examining how teachers and students view the goals, procedures, and outcomes of the instructional choice interventions used.

Three students were invited to participate in the study, with two student's families opting to move forward. The two first-grade students that participated in the study were given the names Neal and Tina. They both attended a large, suburban, public elementary school in the Midwest with grades K-5 and roughly 600 students enrolled. Both students were selected through systematic screening procedures along with their risk index based on the Student Risk Screening Scale (SRSS) and their writing and working independently report card grades. Tina was an average developing student and was not receiving support in writing at the start of the study but was a part of a small group Tier 2 reading interventions in the classroom when the study began. At the end of

the study Tina moved to Tier 3 supports in reading. Neal qualified for special education services under the category of autism prior to the study.

Three educators participated in the study. One was a first-grade general education teacher who was in her 13th year teaching. The second was a special education teacher who was in her second year of teaching. The third was an instructional support teacher with 15 years of experience.

Tina and Neal's first-grade class had 25 students and had a classroom Peacemaker Promise as the foundation of the class' behavioral support system.

When searching for students to participate in this study, student behavior screening and report card data was collected to help identify first-grade students with behavior concerns and work completion concerns in the area of writing. Criteria requirements were set if the student scored in the moderate or high-risk category on the SRSS, scoring a Progressing or Limited Progress in writing, and scored a Progressing grade for being able to work independently on the fall 2013 report card. (Lane et al., 2015)

Lane et al. (2015) reviewed two types of instructional choices provided to students. The first was an across-task choice that allows the student to select the order they want to complete the task, and the second was a within-task choice that allows the students options of how the assigned task could be completed. At the end of each instructional choice model, the teacher praised the students for their choice of how to carry out the assigned task. Treatment integrity was collected by using a behavior checklist for the baseline and during the interventions. During the writing instruction,

academic engagement time, AET, and disruptive behavior were observed, with the focus on the students' AET and the impact the instruction choice had on students' productive work time. These were recorded every two minutes during the activity. However, most cases of student disruption lasted for more than a few minutes. The students had the opportunity to share their views using a modified version of the Children's Intervention Rating Profile.

Lane et al. (2015) used an A-B-A-B alternating treatment withdrawal design over the course of eight weeks, starting with a baseline stage for the two first grade participants. All data collection for each variable was reviewed using visual inspection techniques that focused on stability, level, and trend over 28 days of the intervention study. Academic engagement time (AET) and disruptive behavior were recorded in both of the interventions used with the two students. Neal's results did not show any significant results in AET for either intervention in the first introduction. When both were reintroduced, his AET did increase in a positive trend, hinting at improved scores for the second intervention. However, a useful connection was created between choice conditions and disruptive behavior as Neal's disruptions had increased as the study went on. On the other hand, Tina's findings suggested there was a connection between the two choice interventions and her AET. There was also significant evidence showing a connection between the choice intervention and the improvement of Tina's disruptive behavior, especially shown during the within-task intervention.

While a connection to choice task intervention was only created with one of the participants, both types of interventions resulted in higher scores of the students' AET.

Tina's results also showed improvement with disruptive behaviors. "Results suggest improvements in academic engagement, with partial evidence for improving disruptive behavior" (Lane et al., 2015, p. 497). The study goes on to suggest that improvement to the introduction of choice intervention to students could improve results. Lane. et al.(2015) suggests students could benefit from this model if they are provided explicit instruction on how to make a choice and then carry out the selected choice. In addition, involving student input on the choice offer could help to improve the benefits.

Investigating how choice and task preference affect the work performance of students with behavior disorders, Cole et al. (1997) sought to compare the difference between preferred and non-preferred activities. The participants of Cole et al. (1997) study were three boys from a university-affiliated laboratory school for students with emotional/behavioral disorders and autism. The enrollment of the school consisted of about 75 students who were labeled seriously emotionally disturbed as well as about 25 life skills students with higher instinctual impairments and behavior concerns. Teacher reports of off-task and disruptive behaviors were recorded independently prior to this study with informal classroom observations of behavior concerns.

One of the participants was a student named Abe, who was 12 years old and had a diagnosis of pervasive developmental disorder and developmental language disorder. He demonstrated off-task and disruptive behaviors such as severe temper flare-ups, repetitive verbal behaviors, and compulsive/ritualistic behaviors. Another student named Ben was 13 years old, had attention deficit hyperactivity disorder(ADHD), and had reports of recurring verbal and physical aggression towards others, off-task

behavior, and noncompliance with teachers. The final student, Sam, age 11, was given the label pervasive developmental disorder with seizures. Sam's teachers noted his high-rate and repetitive talking-out behaviors in class and off-task behaviors.

The classroom usually consisted of two certified teachers and seven students, and all of the sessions were held during the students' vocational period. Students were evaluated individually before and after data collection, but during experimental sessions, all three students sat at the same table to work on the tasks. There were five tasks selected that met vocational goals on the student's IEP: the task was new to the student, and after three training sessions, students in the study were able to complete it on their own. The five tasks were stapling, sealing, bagging, pad making, and folders. A preference assessment was given before the experimental session began to see student's preferred activities. The preference assessment was given again at the end of the study to see if students had changed their preferred task order after the experiment. Preferences for students stayed the same from pre to post-assessment. Sessions were 60 minutes long and broken into three 15 minute intervals with a 5 minute break in-between. Each participant was observed for 5 minutes, uninterrupted, in each 15-minute session.

Abe had the most task engagement during the assigned-preferred and choice conditions and had the lowest task engagement during the assigned-nonpreferred task. Ben's data results varied more, particularly during the assigned-nonpreferred task, had an average score of task engagement that was higher during the assigned-preferred and choice sessions. Showing comparable data scores across the three task conditions, Sam

task engagement score was a little bit higher in the choice condition. For all three participants, disruptive behavior stayed reasonably low within all task conditions presented. Comparably, for the participants work productivity during each assigned task, Abe scored highest during his assigned-preferred and choice conditions. During the non-preferred task, Abe completed little to no work. Ben showed an average that was a little higher in choice tasks and assigned-preferred compared to his tasks that were non-preferred. Equal comparisons showed up for Sam across all three task conditions but showed slightly higher scores during the assigned-preferred condition.

Cole et al. (1997) found that both task and task preference impacted engagement level for the three students with behavior and developmental disabilities. “These findings suggest the future work in this area should attempt to identify specific student characteristics associated with responsive or nonresponsiveness to choice and task preference variables” (Cole et al., 1997, p. 72). This study found evidence that providing choice activities for students with behavior and developmental behaviors could prove to have benefits on students’ behavior and task engagement.

Allowing students to actively participate in choice-making opportunities and the results of its effectiveness were the guiding research for Dibley and Lim’s (1999) study. The participant of this study was a 15-year-old girl named Sally from New South Wales, Australia. Sally was diagnosed with having a severe intellectual disability and attended a school for a specific purpose (SSP), concentrating on providing her with communication, independent living, leisure, and recreation skills. The sessions were held in Sally’s classroom, which consisted of seven students, ranging in ages 11 to 17 years. Leading

the class were a teacher and a teacher's aide. Three activities were used for this study: mealtimes, toileting and listening to a tape player and were used because they presented effortless opportunities for choice and happened at least one time a day. Before the study started, two functional assessments were given to help identify situations to explain Sally's behavior. The Motivational Assessment Scale and functional assessment concluded that Sally's inappropriate behavior was due to task avoidance or not appreciating the expectations carried out with the assignment. Dibley & Lin (1999) hypothesized Sally's task avoidance and protest could be a result of the lack of control she felt she had over her school routines. An A-B-A-B-C instruction was used to measure the results of incorporating choice on the frequency of the task initiations and protests Sally had across the three different activities. The A phase and B phase reviewed the no-choice and choice within activity effects on the participant's initiations and objections to the task. The C phase looked at how the control of choice-making for Sally affected her task initiations and objections.

The data collected from the A-B-A-B-C task instruction show significantly more protest in the A phase where no choice was provided. In contrast, there was a significant decrease in objections during the B phase and the C phase, Sally had a choice within the task. Dibley and Lin's (1999) data shows the results of bringing in different dimensions of choice-making opportunities, both during and between Sally's schedules of school activities. Providing Sally choice making opportunities within steps of the activities had a positive increase on her initiating a task and had a decrease in her protests (Dibley & Lin, 1999, p. 128). These results support Dibley and Lin's (1999) hypothesis that Sally's

inappropriate behavior is due to a lack of choice and control in her daily schedule and tasks. Time constraints and further replication of the phase C task are limitations noted by the authors. With thought out planning for including a choice-making opportunity for students in their schedules, educators can help build lifestyle support plans that are student centered, give more control to the student and less from the teacher, and provide the students with a higher level of respect towards their quality of life.

Multiple Intelligence Theory in The Classroom

Each individual has a preferred style of learning. How a teacher uses those learning styles can increase student success and motivation in the classroom. One study found when provided options with Multiple Intelligences in a Visual Arts classroom, there was an increase in the success and permanence of knowledge among the students, as well as an increase in test scores when learning compared to those in the control group (Taspinar & Kaya, 2016). Looking at the results from sixty-three 8th grade visual art students, the experiment was designed to review the effect of Multiple Intelligence Theory (MIT) based teaching on student attitudes towards the subject. The study used an adjusted Multiple Intelligence inventory to score individual students in addition to the control and experimental groups. MIT based class activities were completed for two hours a week over three weeks in the experimental group, while the control group had a classical teaching method carried out for the same amount of time. At the end of the units, tests were conducted to determine the success of the students. Students were also tested three weeks after the end of the unit to test the permanence of their knowledge from the unit. With these results, it suggests that rather than using

one single method of teaching, educators should consider different learning styles when planning their units and assignments to increase student success and permanence of knowledge.

Iflazoglu Saban (2011) focused on how teachers are using Multiple Intelligences within their guided curriculum. Using a mixed model of both qualitative and quantitative data, the study reviewed 254 teachers' responses, ranging from 1-26 years of teaching experience with a mean of 11 years. A questionnaire was designed to collect data on the inventory of class activities done in connection with the MI. While the study found that teachers were, in fact, able to use the different learning styles in their classroom, not all areas of the Multiple Intelligences were met with the same rigor and time allotment. The 4th-grade elementary teachers found it easier to incorporate all eight learning styles, including music and rhythmic intelligence, into their daily lesson plans, but this trend drops as the grade level increases. Educators who taught Science and Technology to grades 7th and 8th found it harder to incorporate all intelligences equally, even though the new curriculum was guided by the influence of the Multiple Intelligence Theory. Iflazoglu Saban's (2011) findings stated that teachers had a general understanding of the Multiple Intelligences but did not have the proficiency to put their knowledge into everyday practice. In a qualitative questionnaire, the teachers expressed that they could not see themselves being proficient with the curriculum due to the large class size and limited time with students.

It is important for an educator to know the preferred learning styles are of their students that make up the classroom to tailor the lessons accordingly. Sener and Cokcaliskan (2018) declared,

Exploring learning styles and multiple intelligence types of learners can enable the students to identify their strengths and weaknesses and learn from them. It is also very important for teachers to understand their learners' learning styles and multiple intelligences since they can carefully identify their goals and design activities that can teach to the different intelligences, and design student-centered activities (Sener & Cokcaliskan, 2018, p. 125)

Their quantitative study wanted to find what students preferred learning styles were and if there was any effect due to gender. Sener and Cokcaliskan's (2018) results show that the students had almost all of the different types of learning styles to some degree. The preferred learning styles of the students' were mostly found to be tactile and auditory, with the top three intelligence groups being Naturalistic, Visual, and Kinesthetic. No notable difference was found based on gender in this study. By gaining a better understanding of each individual's preferred learning styles and intelligences, it was anticipated that there will be a better understanding of the individual's strengths and weaknesses to help the learner become more accomplished in their education. In addition to this understanding, this knowledge can also help to promote the learner's self-confidence and develop a positive outlook in furthering their education in and out of the classroom. The classroom teacher can use this found knowledge to create tailored lessons to help promote student success.

Looking to gain insight to better improve student creative thinking and achievement while learning Science, Widiana and Jampel (2016) ran a study focusing on the use of multiple intelligence theory with mind mapping. The data collected came from twenty fifth-grade students in the even semester of the 2011-2012 school year. The study had four components which were 1) Multiple intelligence instruction with the aid of mind mapping, 2) creative thinking skills, 3) student achievements in science, and 4) student responses to the use of multiple intelligence teaching with mind mapping. The study ran in two cycles. and each cycle had four segments that included planning, action, observation/evaluations, and reflection. Three types of instruments were used to conduct this study. They included; a performance test used to collect information about the student's creative thinking skills, a learning test to collect data about the student's achievements in science, and a questionnaire to review student's feedback in regards to the use of multiple intelligence instruction in the classroom with mind mapping.

Widiana and Jampel (2016) found student's critical thinking skills were found to increase in the second cycle moving the students' average score into the high category that has the specified criteria of success. In the section focusing on student achievement in learning, there was a jump from 70% of students who have mastered the material in cycle one to 95% of students mastering the material in cycle two. They also found that students had strong positive responses to the learning style and really enjoyed the use of Multiple Intelligence instruction with mind mapping. These results are conclusive with other empirical evidence conducted from previous studies. This learning style

allows students to be active in their learning process and to better interact with the materials, classmates, and teachers. Limitations of the study include time limitations for teachers to provide guidance fairly. In addition, some students had not used mind mapping prior to the study and were not used to asking questions and holding discussions with peers. Overall, Widiana and Jampel (2016) found improved scores in all categories and students' response to the instructional style was exceedingly positive.

In a typical classroom setting, students are expected to demonstrate their knowledge or skill by using the assessment methods selected by the instructor. When using Multiple Intelligences in the classroom and assessment, teachers are able to collect different angles of perspectives on the students' ability and comprehension of the material. Crim, Kennedy, and Thornton (2013) looked to investigate how students' aesthetic representations connect to their personal multiple intelligence strengths, as well as how those choices can support the idea of choice and differentiation in a university classroom. Their study also tried to bridge the gap between their three main areas of study- differentiation, multiple intelligences, and aesthetic representation they found in their literature.

As Crim et al. (2013) moved forward with their research, they followed two research questions. 1. How do students perceive the alignment between their aesthetic representations and their self-identified strongest area(s) of multiple intelligences? 2. How do aesthetic representations allow for differentiation in the university classroom? (2013, p.74). The data came from a teacher certification program with 3,000 undergraduate students out of a large public university. The study collected 122

undergraduate participants from a wide range of ages and backgrounds. The participants were enrolled in five mandatory elementary teacher certification courses, and the data from the study was conducted over several semesters.

Surveys given to the participants were used to collect most of the data including a self-reported multiple intelligence questionnaire, and end of semester student written reflections, and the aesthetic representations themselves. After students had presented their personal aesthetic representation at the end of the semester, they were asked to answer the question, “Did your aesthetic representation align to your own personal area of multiple intelligences strengths?” and explain their response regarding their personal opinion about the lesson process. Three categories were created to track the data collected; alignment, non-alignment, and non-response. Some students reported that their aesthetic representation did not match their strongest intelligences, but upon review the researcher felt they had found areas that proved the students’ aesthetic representation aligned with their multiple intelligence data. “Through the process, three overarching final themes emerged- the importance of 1) meaningful choices, 2) critical thinking, and 3) personal affirmation. Crim et al.’s final results from the student’s responses were broken down into the three categories mentioned above. The results are: 85% had alignment, 11% non-alignment, and 4% did not respond to the question or gave a reply that did not speak to the question.

The study found that this assignment supported a differentiated style of instruction because it motivated students with the power of choice that appealed to their personal interests, readiness levels, and learning styles (Crim et al., 2013, p. 82).

Providing the opportunity for choice led to the students' overall feeling of success and achievement in the lesson. By providing this meaningful choice, it allows the student to select forms of assessment that fit their personal areas of strength and interest. Additionally, when students had to complete their own personal aesthetic representation, it forced them to think critically about their project by creating a meaningful personal representation with the help of reviewing and reflecting during the process. Both meaningful choice and critical thinking help aid in the success of the student's personal affirmation upon completing the project. "Through the inclusion of choice, a necessary element of critical thinking, and personal affirmation of effort, learning, and feelings, this assignment allowed us to model differentiation in a realistic and meaningful way" (Crim et al., 2013, p. 88).

This study has strong evidence that using aesthetic representations is an effective way to use differentiated instruction in a higher education classroom setting. It found that using choice in the classroom is a way to empower and motivate students to demonstrate their learning in their strongest area(s) of multiple intelligences. Crim et al. (2013) were interested in researching the role of aesthetic representations in the development of curriculum and assessment and how student culture and background can affect their personal approach to aesthetic representation.

Using Multiple Intelligences in regards to students learning a second language, Pour-Mohammadi et al. (2012) sought to find the relationship between students' strengths in multiple intelligences with the student's achievement in learning the English language. The study states it is the responsibility of the educator to help unlock the

learning potential of all eight multiple intelligences within the student and that all students have the capacity to improve in all of the intelligences as long as they are given a chance to learn how to use them based on their individual needs. The most important thing is to find out what works best for the individual learner. Pour-Mohammadi et al. (2012) had four guiding research questions during this particular study; 1. What is the relationship between students' strengths in each of their multiple intelligence and their achievement in learning the English language? 2. Do students in the Arts and Sciences streams differ in the correlation of their strengths in multiple intelligences and their English language achievement? 3. Which of the multiple intelligences predicts the strongest influences on the students' English language achievement? 4. What are the differences between Science and Art students in their multiple intelligences strengths that predict the strongest influences on English language achievement? The study states it is "exploratory in nature and as such as no attempt has been made to formulate a hypothesis for the study, while both descriptive and inferential methods are used for the analysis. They include correlation on multiple regressions." (Pour-Mohammadi et al., 2012, p. 679).

The target group used for this study was 120 randomly selected 16-year-old male students from a secondary school in an urban setting. Sixty of the students were selected from three science classes, while the other sixty students were selected from three art classes. The students ranged in abilities in regards to their English language competency. All students within the six classes were given the same test to avoid students wondering why they were or weren't selected for the study. To find students,

strengths within the multiple intelligences, an adapted multiple intelligences test from an inventory designed by the Learning Disabilities Resources Community (LRDC) from Ontario, Canada, was used. The test consisted of 80 items, having ten allotted to each of the eight multiple intelligences. Students rank their responses to each question using the 5-level Likert scale. To ensure the results were reliable and no translation concerns could alter the data, the results were checked with back-to-back translation and a pilot test consisting of 35 students not from the chosen sample study (p.680). The results from the data shows the participants from both groups scored highest in interpersonal intelligence. The students' scores then rank from logical/mathematical, interpersonal, visual/spatial, and naturalistic. The students scored lower in musical/rhythmic, bodily/kinesthetic, and verbal/linguistic.

To collect data for the first research question in this study, an assessment between the variables was conducted using Pearson Correlation, while the strength of the relationships was assessed using Gay and Airasian(2009) where a rapport of 0.8 and higher is viewed as "very high," 0.6 to 0.8 as "high," 0.6-0.4 as "average" and anything less than 0.4 as "weak" correspondingly. It was found that for all students there are noteworthy connections between some of their Multiple Intelligences and English language achievement. It was noted these relationships were negatively allied: verbal/linguistic, visual/special, bodily/kinesthetic, musical/rhythmic, and naturalistic intelligence. When looking at the strengths within these relationships, their values are considered weak (under 0.4) on the assessment.

For the second research question, a comparative investigation was needed to assess the relationship values for the variables in both Science and Art. The study found for the Science students, only their logical/mathematical intelligence has a meaningful connection with their English language achievement. The coefficient value is small, showing a weak relationship. Within the same data for sciences students, it can be seen that all other Multiple Intelligences do not show any significant correlation with their achievement in language. However, for the art students, this analysis shows their Multiple Intelligence for visual/special, musical/rhythmic, and naturalistic have strong relationships but are poorly correlated with respondents' English language achievements. Further, it was shown these relations are scored low and are considered "weak" on the scale.

Research findings for the third question prove that as much as 29.2% of the variants were contributed by all eight Multiple Intelligences towards the variable for language achievement. It also shows that Multiple Intelligences for verbal/linguistic, logical/mathematical, musical/rhythmic, naturalistic, and interpersonal all have meaningful influences on students' language achievement. (p. 682) The findings show that interpersonal intelligences can predict the strongest positive influence on language achievement when compared to logical/mathematical intelligence. Within the same findings, the students' naturalistic intelligence predicts the strongest negative influence on achievement compared to verbal/linguistic and musical/rhythmic intelligences.

The final research question was answered using a multiple regression analysis of the data variables from both Science and Art students. The findings for the science

students, not one of their intelligences had any significant influence on the student's English language achievement. Comparatively, the students from the art course have three Multiple Intelligences that show a significant impact on their English language achievement. The three strongest Multiple Intelligences for the art students are visual/spatial, interpersonal, and naturalistic. Of these three intelligences, interpersonal predicts the strongest positive influence on the student's learning. The findings also reveal the naturalistic intelligence has the strongest negative predictor of the art student's language success.

Upon looking over all four research questions, it was generally found that for all students in the study, there are some negative correlations between their Multiple Intelligences and their English language achievement. The Multiple Intelligences that scored "weak" on the scale are verbal/linguistics, visual/spatial, bodily/kinesthetic, musical/rhythmic, and naturalistic. While the Multiple Intelligences for logical/mathematical, interpersonal, and intrapersonal did not show any meaningful relationship with the students learning achievement in language. When reviewing data from the Science students, just their logical/mathematical intelligence had a positive impact on their success in the language; all thought it should be noted it was a weak relationship based on the scale. All other intelligences for Science students showed no meaningful connection to their English language. "Art students' strength in the Multiple Intelligences for visual/spatial, musical/rhythmic, and naturalistic have significant but negative and weak relationship with the respondents' language achievement" (p.683).

This study looks into the relationship between the students' strengths in Multiple Intelligences and the connection to the students' English language. When the learning environment does not have a strong Multiple Intelligence presence, both the students and educator might be unable to gain the best results. Overall, the study is encouraging educators to consider how to keep Multiple Intelligences in mind while teaching the English language. Teachers can organize lessons and classroom activities in a way to help build and play off of all students' Multiple Intelligences. Doing this could also encourage learners to Multiple Intelligences on their own as they gain confidence and become more aware of the different learning styles.

At a university in Turkey, an empirical study was conducted to see the effects of Multiple Intelligences influence on students' cognitive abilities and academic achievement in an art history course. Erkan and Uster (2012) conducted this study to help create a better curriculum within the course to meet the individual preferred learning styles of the students. By paying attention to the different intelligences while planning the course instruction, the educator would hopefully be able to keep all students engaged in the learning process and understand the concept of the subject more comprehensively.

Erkan and Uster (2012) enrolled both sections of History of Art 1 taught by the same instructor for the purpose of this study. The two randomly-selected sections were split into 65 students in the experimental group and 52 students in the control group. Both of the groups were made up of male and female students enrolled as Art majors and Non-Art majors. Any student that was repeating the course was removed from the

study. There was no noticeable difference between the groups before the experiment was conducted. The control group was given the content through traditional methods used pervasively, while the experimental group employed Multiple Intelligence strategies through instruction.

Qualitative methods were used to analyze the effectiveness of the use of Multiple Intelligences using the Statistical Package for Social Sciences (SPSS) 17.0 version. To evaluate the difference between the experimental and control group, descriptive analysis and an independent sample t-test were used according to their gender and department (p. 284). Multiple tables were created from the data collected. The results are as follows: Table 1 gives information about the points students earned at midterm, projects and presentations, their final exam. The data clearly showed students in the experimental group had more success compared to the control group. Table 2 showed the current grading system and the grade point and letter values the students could score. Table 3 showed the letter score the student earned at the end of the term. The data showed strong evidence that the experimental group's students had more success compared to the control group. The data collected from Table 4 and Table 5 show the score the female students took at the end of the course. When the cumulative percentages are reviewed, it shows the experimental group students' scored higher compared to the control group.

Table 6 and Table 7 reviewed the scores collected from the male students. The collective data proves the students in the experimental group had better results than the control group did. It was noted the female students scored higher in both the

experimental and control groups compared to the male students in the same class.

Reviewing Table 8 and Table 9, shows the scores of Art major students. No significant difference was found between the experimental and control group. Table 10 and Table 11 had similar findings for the Non-Art majors with no significant difference between the groups.

Data from Table 12 compares descriptive information about exams from the female students, and no significant difference between the groups was shown, while Table 13 compared the same information amongst the male students and found the experimental group outperformed the control group. Reviewing the data from Table 14, it was found that there was no meaningful difference between the groups for female scores during the first midterm, second midterm, and final exam. As far as similar data collected for the male students, Table 15 found no significant difference between the first midterm and the final exam. However, there was a difference in the second midterm and term average between the two groups. Art Majors were compared in Table 16, and the two groups scored similarly, making no significant difference. It was noted earlier in the article that not all Art majors attended class as frequently, which can affect the results from the experimental group. There could be potential evidence for this when comparing Table 17 and looking at the Non-Art majors who scored significantly higher in the experimental group compared to the control group.

Erkan and Uster's (2012) study concludes with stating the Multiple Intelligence theory provides a significant impact in regards to our understanding of teaching and learning. They go onto suggest it should become a theory that is used more frequently

within higher education and Art education research (p. 295). Erkan and Uster also found that Multiple Intelligences provide an intrinsic motivation for faculty to adjust their teaching practices because the theory is based on the realization that students have different preferred learning styles and intelligences.

A classroom study using a hands-on approach to understanding how to apply Multiple Intelligences to lesson creation was used with thirty-five undergraduate students enrolled in Education Psychology. Pool et al.(2011) conducted this study made up of 16 elementary and 19 secondary preservice teachers, enrolled in two sections of the same course whose goal was to help students develop an interest and an appreciation for the intricate mixing of development, cognitive, motivation, attitudes and teacher-student relationships in the learning process and the emphasis on using differentiation in the classroom.

An adaptive lesson on geometry was used where students had to demonstrate their knowledge of geometric concepts and their relationships by identifying and describing geometric items in the real world, Pool et al. (2011, p. 3) used math as the subject matter because their collective experience suggested that most students have had experience and exposure to a traditional math education without arts integration or any creative pedagogy additions to the curriculum. The lesson was designed for middle-school age students, so Pool et at. (2011) felt it overlapped both the elementary (K-6) and secondary (7-12) grade levels.

Before this class was held, students completed a text chapter covering the multiple intelligence theory and a chapter on lesson design and instructional strategies

choices. Students were provided a compact model of the Artful Learning™ model using experience, inquire, create, and reflect concepts for Educational Psychology students to help encourage an arts-integrated experience for the multiple intelligence lesson. During the experience phase, three inquiry centers were used to review the masterwork of Raphael's, *The School of Athens*. This painting has a classical focus from the High Renaissance and uses geometric space. Preservice teachers would review the work with common geometric vocabulary and set Raphael's painting in a historical time period. Students had also reviewed multiple intelligences and started to plan how they might be able to use the multiple intelligence theory in their lesson. For the inquiry portion of the unit, students were assigned to capture 20 geometric images from around campus in teams using digital cameras for a homework assignment. The groups printed their images and assigned a descriptive explanation of the photo while using the geometric vocabulary.

In the creation phase, the students brought in their printed pictures and narrative examples to create a collage showing geometry in the real world. During the final phase of the action research study, students needed to reflect on and describe their learning and the multiple intelligence theory pedagogy; arts-based instruction, mastery of content, and differentiation of instruction. A follow-up quiz was assigned to the students to gain insight into if students applied multiple intelligence theory in their lesson plans. Six reflective prompts were also included to see how students understood how the multiple intelligences and arts-based integration might influence student learning and impact their professional teaching pedagogies.

Pool et al. (2011) analyzed two types of assessments for this study. An original lesson plan and six reflective prompt responses to review students understanding of multiple intelligence theory. The original lesson plan needed students to write an original lesson plan for a class or grade that you one day might teach based on what they have learned about lesson planning using the multiple intelligences, Bloom's taxonomy, instructional strategies, and included, arts-based curriculum. Students responded to six reflective questions to review their personal experiences with the arts-based lesson template and geometry content.

The overall response analysis showed that 51% of students used multiple intelligences in their lesson plans. However, there was a significant mark difference between Section A with 69% compared to Section B with only 37%. Students in Section A also outperformed the students in Section B in Universal Design, Arts-based strategies and Accommodations. Patton's content analysis process was used to find patterns and connections with the qualitative data from the two groups. This is how the four benchmarks for identifying the multiple intelligences and how they might be considered for data were created. The four benchmarks are Universal design elements, Applying multiple intelligences, Incorporating or analyzing how arts-based skills are used, and accommodations. The student's narrative responses were used to determine the usefulness of the multiple intelligence theory, and arts-based integration would be used in their future lesson planning. Pool et al. (2011) also noted that preservice teachers started to consider how instructional design geared towards students' strengths could

be beneficial to help improve the learning environment and accessibility of education to a wide range of diverse learners.

Many students at the start of the lesson had some background with multiple intelligences and arts-based integration but found it difficult to use the theories in instructional practice. Having mentors and instructors model how to use these two theories in lesson plans is necessary for students to build their capacity to do the same. Results from the student response data showed students are still developing and varied in their ability to self-reflect. Although some students were able to clearly state how they could use multiple intelligence theory in their future classrooms, a majority of the students did not provide content on how they would use the theory in their classroom. It was noted that providing students with modeling how to be critically reflective in their teaching practice and responses might prove better results in the future.

All but one student from the study reported that they felt motivated and interested to learn more about the multiple intelligences through arts-based instruction. Students who did not enjoy mathematics themselves found an increased motivation through the multiple intelligence theory. Pool et al. (2011) found that preservice teachers started to see the value and need to cultivate a classroom environment to make content accessible and relevant to all learners. The student responses showed a strong positive response to learning activities that reach a wide range of students in various disciplines.

Pool et al. found their study in lesson design with the multiple intelligences theory brought significant topics to consider when planning instructional content. "It

reinforced for use the challenges associated with creating ongoing opportunities and experiences to model best practices for impacting student learning.” (Pool et al., 2011, p. 9). The action research was considered an introduction in ways to explore how arts-based instructional strategies could be used in the undergraduate curriculum. The findings provide early evidence showing how arts-based instruction with multiple intelligence provided stronger educational practice when reaching the needs and interests of diverse learners.

After providing a questionnaire following the MIDAS model to 5th and 6th grade students from a Romanian secondary school, Sorin-Avram (2015) sought to analyze how Gardner’s Multiple Intelligences Theory can be used in classroom instruction design based on the student profiles and potential from the survey. The author writes that while there was great excitement in the field of education when the Multiple Intelligence Theory came about, the transition of theory into practice was not as easy. There was excitement about the theory but little knowledge of how to implement it in daily classroom instruction. “Indeed there should be a way for such a model that would mediate the scientific model with the educational and didactic one which should be in practice” (Sorin-Avram, 2015, p. 1772).

The questionnaires were given to two groups of students, 5th grade and 6th grade, at the end of the school year. With the first questionnaire results, lessons and activities were created for the experimental group. Group 1 had 31 students, was the experimental group, while the control group consisted of 32 students. The data compared from both groups was used to determine the impact of the use of theory, as-

well-as to gain an understanding of the results, student motivation, and paths students would take at the end of their secondary school into high school (Sorin-Avram, 2015, p. 1773).

The questionnaire results in the category of linguistics intelligences, students' scores improved from initial test to final test in both the control and experimental groups; however, the control groups range of improvement was more significant. There were three sets of activities created following the student achievement of the learning objectives based on the current course syllabus using three sets of criteria: linguistic sensitivity, writing, and reading. Both groups showed improvement in each topic, while the experimental group showed a much higher increase in scores in linguistic sensitivity and reading compared to the control group. The initial and final questionnaire results showed improvement for both groups in logical-mathematical intelligences in the two categories: problem-solving and calculus. Both the control group and the experimental group show similar findings on data results.

The data from the Sorin-Avram's (2015) study shows it is apparent a vast number of students scored within the moderate zones for linguistic and logical-mathematical intelligences. Taking into consideration how many educational systems favor these two types of intelligences these scores are understandable. While looking at student scores individually within each intelligence, Sorin-Avram (2015) suggests a holistic approach when analyzing, creating, and implementing instruction. "The approach is based on such a large and detailed diagnosis of potential, opens the way to personalized instruction given the vast variety of potential of which one element is either small or a large part of

the whole” (Sorin-Avram. 2015, p. 1776). The concept of carrying out such a curriculum is unfamiliar to both parents and educators. Some educators might feel it is too big of an undertaking to carry out without instruction or guidance. The instructional strategy had more appeal to the students as it helped increase interest and motivation within the activities being taught.

Studio thinking. Creativity can be linked to helping individuals understand the world around them. If a teacher is able to help promote individual creativity in the classroom, they can help their students develop a level of understanding also. A research study by Hunter-Doniger and Berlinsky (2017), which has both qualitative and quantitative components, used an artist-in-residency program to come into twenty-four elementary classrooms with approximately 600 students on two different occasions, to work with students and the connection to the Eight Studio Habits of Mind in the classroom. One visit was before the artist-in-residence, and one was during the art-infusion instruction. Classroom teachers also filled out surveys before and after the artist-in-residence. “Particular questions were asked regarding general pedagogical practices and specific planning of lessons related to arts integration and how it could be applied to fulfill each of the Eight Studio Habits of Mind” (Hunter-Doniger & Berlinsky, 2017, p. 21). Students became active members of their own learning process. Students who are actively engaged in the learning process continue to increase their knowledge of the content through trial and error as they move through the content. Using the Eight Studio Habits of Mind, the artist-in-residence program encouraged students to create something that mattered to them both academically and expressively. It promotes

intrinsic motivation within the student. Hunter-Doniger and Berlinksky (2017) conclude with evidence that artist-in-residence programs form a community collaboration between teachers and artist, which can allow for a transformative culture within the school setting to help students make connections to real-life experiences.

In a study focused on young visual arts students' motivation, competence, talent, and creativity, Rostan (2010) visited a private after-school recreational art program in a suburban setting in New York. Fifty-one children were enrolled in the program, and for the sake of this study, broken into two groups: 25 younger students with ages ranging from 9-10.5 and 26 older students with ages ranging from 10.8-15.8 years old. The classes met for 1-1 ½ hours a week with mixed classes of age and ability. The younger group met in an early afternoon class and the older group in an evening session (2010, p. 264).

The study had students complete two different drawing activities, both in which the students were provided with the same materials to use to complete the tasks. In the first drawing activity, students were asked to draw something from imagination. No time limits were placed on the students as they completed their drawings. The second drawing asked the students to select at least two objects from 23 objects preselected to be completed as a life-drawing. No time restraints were placed upon the students to finish this drawing task. Rostan (2010) mentions from the perspective of students, both of the drawing tasks provided choice in how they will complete and problem-solve to find an appropriate solution to the assignment. Each student completed the two tasks in an individual videotaped session with the experimenter. At the end of the drawings,

each participant was measured using the Need for Cognition Scale (NCS) by responding to 18 statements on a 1-4 scale relating to how they perceived the statement to fit with them.

Upon completion, three expert judges were asked to come in and blindly assess each set of drawings on a provided scale from the experimenter. The results from this study were similar to previous studies using these measurements. The NCS did not have a strong connection with age or gender, but it did have a strong connection in the total amount of time a student spent drawing, the amount of the students total drawing time spent finding a problem, as-well-as the assessment of the students technical skill (Rostan, 2010, p. 266). What was not shocking to find was the number of years a student attended the art program had a meaningful impact on the total amount of time students spent drawing, finding a problem during the drawing time, and their technical skills and creativity.

In this study, the studio learning engendered by engagement in high quality visual arts experiences is a measurable factor of talent and creativity, but also the continued motivation for competence within a domain. Students enhanced observational drawing skills also seem to help them express their creativity even when they are drawing from their own imagination. (Rostan, 2010, p. 270)

This study helps to show that with continued practice, even young students can begin to think and act like an artist. Having technical skills are the building blocks to help propel their own creativity forward.

Flipped Class. Using a flipped-classroom model, seven teachers from Sweden working with students in years 4-9 were interviewed in Hultén and Larsson's (2018) study. The focus was aimed at collecting data to help increase the understanding of the flipped-classroom movement from teachers who willingly participated on their own accord to improve instruction and meet the curriculum demands for their course. These teachers are known as "early adopters" because they joined the movement early on, and have actively used the flipped classroom model in their instruction, so they were considered to have good insights and experiences with the learning style. The two guiding research questions that led the study were, "What characterizes flipped classroom instruction according to the teachers?" and "What objectives do the flipped classroom meet according to the teachers?" In order to collect detailed responses for the purpose of the study, Hultén and Larsson (2018) used interviews to acquire their data. The teacher sample was collected and narrowed down by seeking out "early-adopter" to the flipped-classroom instructional approach. A purposeful sampling approach was used, and five teachers meeting the criteria were selected. Additional teachers were sought out from tips given by the interviewed informants. Two more teachers were collected for the study from this. It was noted that based on the qualification to be a part of the study, it was not necessarily representative of all teachers who use flipped-classroom in their instruction but a good sampling of those who willingly went into the practice. All seven participants were certified teachers and had a minimum of 7 years of teaching experience. Three of the teachers taught years 4-6, while the remaining four taught years 7-9. All but one teacher reported their students had access to their own

computers. The interviews were recorded digitally and took up to 75 minutes to complete.

Qualitative data was collected using thematic analysis to collect a better understanding of the flipped-classroom model as described by the interviewees. Hultén and Larsson (2018) sought to find common themes or repetitions from the data collected. A topic or idea needed to be mentioned by most of the interviewees to order to be considered a qualified concept of the movement. From this data collection, four themes materialize as key components to the flipped-classroom model; “the flip,” known as a clip to watch before the lesson, student activity in class, educational change and being part of a digital learning community.

“The flip” is a clip the students need to watch before they attend class and participate in the lesson. One interviewee commented that “the flip” can be beneficial to students who struggle with reading text. The clip gets students started with the lesson at home, and the following day in the classroom, “day-work” or in-class work was held. The teachers interviewed acknowledged there would still be some students who would not watch the clip just as they would not complete the traditional homework model. It, however, did not seem to discourage the teachers from using this modeling as they didn’t see it any worse off compared to a traditional classroom model with a student who will not complete the activity to be done at home. They did state they felt more students were willing to participate in a task that required them to watch a clip compared to reading or writing a paper outside of the classroom. The seven participants reference “the flip” to be a flexible educational tool that can be used across most

content areas. Mathematics was mentioned as a subject that was considered very suitable for this style of instruction. Hultén and Larsson's (2018) first research question regarding what characterizes flipped classroom instruction according to the teachers is answered by this first theme.

The second research question, "What objectives does the flipped classroom meet around to the teachers?" is answered with the final three themes. Starting with the student activity in class, or "day-work" as mentioned before, was argued amongst the interviewees to provide more and better interaction between the students and teacher while in the classroom. According to the seven teachers' interviews, flipped-classroom allows students to enter the classroom better prepared to participate in the learning objective. The teachers reported this model made students more active in the classroom lesson compared to passively listening to a lecture.

Educational change was another theme that emerged from the interviews. The group of teachers interviewed for this study felt the lecture-styled model of teaching symbolized an old and traditional form of education. They did not feel this style of teaching was effective in promoting student learning. Being part of a digital learning community was the final theme taken away from the interviews. The teachers viewed themselves as digital learning along with wither students. Online communities were mentioned as helpful tools to improve instruction, as teachers had a wider range of educators to collaborate with to improve instruction.

Overall, the seven interviews teachers reported the flipped classroom model helps to increase student engagement and participation in class. Hultén and Larsson

(2018) concluded with a reminder that not all teachers who flip their classrooms are alike and may have significant differences in using the model as part of their instruction. Suggestions for future research on this model help create a better understanding of what draws a teacher to join similar movements in education, how they have an impact on classroom instruction and how new instructional movements can affect educational policy.

In a flipped classroom, students preview course material at home to prepare them for the next lesson. In a study looking to find the results of flipped classes on student motivation and learning strategies, van Vliet, Winnips and Brouwer (2015) reviewed results using a controlled, pre-and post-test model. The two main purposes of the study were to find if a flipped-class pedagogy improves student motivation and learning strategies, and do these effects continue for several months.

The study was made up of a group of full-time sophomore bachelor psychobiology students from the University of Amsterdam, The Netherlands. The cohort was followed during two required courses that had students complete the Motivated Strategies for Learning Questionnaire (MSLQ) before and after. An additional questionnaire was handed out five months after the second course to see if the effects were long-lasting. The first course was a traditional lecture setting, with daily 2 hour lectures over the course of four weeks. All of the course lectures were recorded on video and posted on the school's electronic learning platform, Blackboard. The second course was also a 4-week course with daily lectures that lasted two hours. While four lectures were traditional in learning style by the various instructors, each Friday, this

course had a traditional + flipped-class structure that was always given by the same instructor. The course material was also posted to Blackboard for student access during the course. Within this second course, two goals were set. First, for students to prepare and begin collecting information at home about the course content; and second, for the students to use a peer-instruction teaching method to discuss questions/answers that were created by the students enrolled in the course.

Using the data from the twenty- two students who completed all four MSLQ, van Vliet, Winnips, and Brouwer (2015) found in the traditional approach, the Likert scale of the MSLQ 15 sections was not different between the two questionnaires. They did, however, find increased scores of “critical thinking,” “task value,” and “peer learning” in the traditional + flipped class approach. While these three areas were not changed during the first course, other changes were noted over the four week period between classes when comparing the components of MSLQ-I with MSLQ-III. “Test anxiety” had a decrease, while “control of learning beliefs” and “self-efficacy for learning and performance” saw increased scores from two questionnaires.

To test the long-term results, fifteen of the twenty-two students who participated in all four MSLQ completed the fifth questionnaire. While the flipped classes seemed to have long-lasting results for some students, the average Likert value score for “critical-thinking,” “task value,” and “peer instruction” had decreased, showing the flipped class did not have evidence of long-lasting effects. They proposed a further study using flipped-class pedagogy in a curriculum to make the effects on deep learning retained. They went on to mention that possible conflicting factors could be a difference

in the two course content areas. van Vliet et al.'s (2015) study shows evidence that a flipped-class method enhanced metacognition and collaborative-learning strategies, with the data from the MSLQ showing increased scores in "critical-thinking," "task value," and "peer learning" components.

While looking to see if reducing students' seat time in a lecture classroom environment would lower student's academic scores, Baepler, Walker, and Driessen (2014) found a blended instructional model to match scores with the traditional classroom model. The main goal of the study was to determine if reducing class time by two-thirds for students would have an impact on student performance. By adding a blended and flipped-class instructional model, students watched lectures outside of the classroom and had the remainder of the traditional class in an active learning classroom (ALC). A secondary purpose behind the study was to find possible alternatives for the limited instructional space and cost savings that are facing some universities. If reducing students' face-to-face time in a traditional method would yield the same results, it would prove to have more than one benefit.

The participants in the study were from an R-1 university in the Midwest from three different sections of a General Chemistry class over three semesters. The first semester was the control group met three times a week in a traditional lecture style class made up of 350 students. The second semester, the following fall school year, broke the students up into three sub-groups that each met in class once a week in an ALC with the capacity for 117 students that had access to online lectures. The final semester took place that spring and was a replication of the first experimental group.

Due to the fact each semester was a different make up of students, the instructor, content, objectives, and course assignments were kept the same over the three semesters.

With the results from the two studies, Baepler et al. (2014) found after making considerations for controlled demographic and aptitude-related setting, a flipped hybrid alternative learning classroom can result in matching and, in one study, better student scores compared to the control classroom with the traditional lecture hall. The study did place emphasis on the lack of being able to control or evenly distribute demographics and aptitude in this research. It noted that the two test results cannot be taken at face value due to the fact there were numerous variable differences between the control class and the two experimental classes. The difference from the student in fall 2012 having a higher performance compared to the lower performing students in spring 2013 could be based on the differences in the students composite ACT score and cumulative GPA's between the two semesters (Baepler et al., 2014. p. 231).

When filling out a survey based on the students' perceptions of the learning environment, the students in the ALC's produced considerably higher results on their survey scores in all areas, with the exception of classroom/course fit, which still produced positive results but not exceeding, compared to the students in the control group. Findings from this study show that a flipped classroom can still provide the same quality, if not better, of learning for students.

When seeking to find the impacts Blended learning has on student achievement, Fazal et al. (2020) found it to have an impact in both qualitative and quantitative testing

with students. The purpose of the mixed-methods study was to see if blending learning helped improve student scores in math and ELA. Fazal et al.(2020) were not as concerned with whether blended learning was present or not in the classroom but focused on the level the blended learning was being used in the classroom. They also used student and teacher responses to collect data on how aspects of blended learning are perceived to have a positive impact on student learning.

The quantitative portion of the study wanted to measure if there was a change in the Measures of Academic Progress assessment (MAP) scores and compare that with the level of key blending learning practices being used in the classroom. Results showed that an increase in the use of blending learning practices within the classroom resulted in positive student growth on the MAP math assessments. Fazal et al. point out that the data shows it was not the addition of adaptive digital content that made an improvement on students' scores but rather the teachers' strategies for differentiating instruction.

Fazal et al. (2020) use a qualitative study to interview teachers and students in focus groups. The purpose of the teacher interview was to provide a better understanding of the teachers' pedagogical classroom approach and how it related to the use of blending learning in the classroom. Fazal et al. (2020) found that the student focus groups provided insight on students' perceptions for their own learning. They also provided insight on how blended learning benefited or not in the students mastery of concepts and learning objectives (2020, p.73). Some of the main observations from this portion of the study include,1) blended learning helps instructors to collect student data

quickly, 2) while helpful, blended learning was not enough to completely replace teacher-led instruction, 3) technology challenges can arise creating the need for both teachers and students to be flexible in the classroom.

Fazal et al. (2020) noted there were significant improvements within specific student groups in blending learning environments. They found that boys, African American students, students with 504 plans, and those in the second quartile had shown to have benefited the most in this type of classroom. They go on to state, “Blended learning allows teachers to concentrate on their lower performing students. Teachers have more time for individual, face-to-face instruction for those who are not on target, while having confidence that their higher performing students are still being challenged with digital content” (2020. p.76). The use of blended learning allows the teacher to provide differentiation while allowing students to move at their own pace and skill level.

CHAPTER III: DISCUSSION AND SUMMARY

Summary of Literature

The findings in this reach search topic show that students respond well to choices being provided in the classroom. Students responded well to being given control over some or all of their learning. Students felt personally invested in the opportunity to take ownership of their education. Various findings showed students expressing high levels of intrinsic motivation to complete their tasks based on the level of choice provided within the unit of study. This was proven in choice within task completion and preferred learning styles for the students (Crim et al., 2013; Doss, 2018; Sener & Cokcaliskan, 2018; Thomas, 2015; Widiana & Jampel, 2016). Student engagement and task completion have shown significant improvement when students are provided options and the opportunity to decide how they will complete a learning target. Giving students a sense of control in the learning process shows more on-task engagement during the learning process (Dibley & Lim, 1999; Doss, 2018; Flowerday & Schraw, 2000; Flowerday & Schraw, 2003; Hultén & Larsson, 2018; Lane et al., 2015; Patall et al., 2010; Thomas, 2015). Motivation has also been proven higher in students who have the choice to carry out learning objectives with ownership and choice-making in the classroom. Personalized components helped to increase students' intrinsic motivation. Empowering students to demonstrate their understanding of the learning material with task choice or their preferred learning style proved motivating for many students (Amabile & Gitomer, 1984; Crim et al., 2013; Cordova & Lepper, 1996; Doss, 2018; Erkan & Uster, 2012; Flowerday & Schraw, 2000; Hua et al., 2014; Hunter-Doniger & Berlinsky,

2017; Komarraju & Karau, 2008; Myrow, 1979; Patall et al., 2010). An additional benefit found by providing choice to students was the decrease in behavior disruptions or objections to the task. Providing students with some power and control over their learning improved the quality of behaviors, especially for those who have been diagnosed with learning difficulties or behavior concerns. For students who had been given a diagnosis, it was recorded that an increase in disruptive behaviors occurred when choice was removed from the classroom (Cole et al., 1997; Dibley & Lim, 1999; Hua et al., 2014; Lane et al., 2015). With the addition of choice provided, some findings concluded with higher levels of learning reached or students challenging themselves who were given choice selections compared to groups without choice in the lesson. Students become self-driven, resulting in higher success data. Different avenues of choice in the classroom also lead to higher scores, abilities and/or success in some cases compared to those who did not receive choice conditions (Amabile & Gitomer, 1984; Chad-Friedman et al., 2019; Cordova & Lepper, 1996; Erkan & Uster, 2012; Flowerday & Schraw, 2000; Komarraju & Karau, 2008; Patall, 2010; Pour-Mohammadi et al., 2021; Widiana & Jampel, 2016). The use of instruction models, such as flipped classrooms, also improved students' results from the research provided (Baepler et al., 2014; Fazal et al., 2020). While many studies found improvement in student motivation and task engagement, it was not always concise with significant or any improvement for students' abilities to retain the new information over the non-choice controls (Chin et al., 2016; Flowerday & Schraw, 2000; Flowerday & Schraw, 2003; Myrow, 1979; van Vliet et al., 2015). It was also noted that providing choice might not be as effective if

students are indifferent to the choices provided by the teacher (Hua et al., 2014).

Allowing students to be a part of the choice-making process, as noted before, can help to increase the motivation and intrinsic motivation for task completion.

With choice provided in the classroom, a lot of freedom and responsibility is placed on the student. This can lead to the considerations of age and level of choice students are given to maintain a high level of learning without overwhelming the student with too much freedom within the choice, causing them to not be able to move forward. Teachers can help assist and provide guidance and praise to students for choice selection. Findings suggest that teacher-led choice instructions can help students focus on skill development to prepare students for higher levels of thinking and intrinsic motivation at an older age (Assor et al., 2002; Chad-Friedman et al., 2019; Flowerday & Schraw, 2003). Teacher assistance and guidance can aid in providing students with the foundational building blocks to be able to tackle objectives that require more critical thinking skills (Rostan, 2010).

How can teachers take theory and put it into practice is the consideration of differentiation within the classroom to provide students the ability to select from different choices or preferred learning styles. A teacher can assist their students further by gaining a better understanding of their students and assisting their students in understanding their own preferences to help maximize motivation, task engagement and content retention (Assor et al., 2002; Chad-Friedman et al., 2019; Dunn & Darlington, 2016; Iflazoglu Saban, 2011; Komarraju & Karau, 2008; Lane et al., 2015;

Pool et al., 2011; Pour-Mohammadi et al., 2021; Sorin-Avram, 2015; Taspinar & Kaya, 2016).

Classroom management style can have an impact on the use of choice in the classroom, but samplings suggest that any management style is able to incorporate some level of choice within the classroom. Along with choice, blended learning and the use of flipped classroom interventions provide opportunities for the teacher to work more with lower-performing students while confidently knowing their higher-performing students are still being challenged with the content provided within the choice section (Baepler et al., 2014; Fazal et al., 2020; Flowerday & Schraw, 2000; Hultén & Larsson, 2018).

Limitations of the Research

Literature for this thesis was collected from searches within the ERIC, EBSCO MegaFILE, and article-specific searches typed in Bethel's Libsearch database were conducted for publications from 1974-2020. Reviewing published empirical studies from peer-reviewed journals helped to narrow the focus on choice in the classroom and the multiple intelligence theory found in journals that addressed the guiding questions. Extra attention was placed in searching for elementary examples in each of the four search topics. An effort to find elementary art specific studies was conducted, but limited results came from those searches. Peer Reviewed was also selected to narrow search results and to aid in the creditability of the data collected for the guiding research question.

There were limited studies providing evidence in an art specific classroom that can affect the impact of student learning in all four research areas, specifically a choice-based or TABs art classroom. A handful of studies demonstrating the effects of choice in the elementary classroom were collected, but many had a small sampling of students to provide data on how it would impact the whole group of students. Based on how specialist classrooms see the entire school population, larger pools of data collection would be useful for the effectiveness and how to execute instruction within the classroom. Many studies focused on how to teach the educator to use these theories and practices in the classroom for research themes but were found especially to be true within the topic of Gardner's multiple intelligence theory. Follow through of this instructional model within the elementary setting was limited, and no studies explained how to implement it within an elementary visual arts education setting specifically.

Implications for Future Research

Research should investigate how the use of choice and the multiple intelligence theory in the classroom can impact student learning. Educators need to consider if too much choice at a young age without foundational knowledge and skills built up for this age group appropriate. How can teachers help students navigate this control while still managing the content required by the academic standards? As suggested in Lane et al. (2015), studies can assist educators with research on how to provide instruction with choices to students and carry out those choices within this age group.

Research is needed to see how larger groups of students in this age group handle the responsibility of so much choice and the long term effects it has on student data and

student retention within the content. A possible hybrid model of choice in the classroom and multiple intelligences with teacher guidance could be used with flipped classroom model to aid in the execution of managing meeting the different learning styles of all students. How specialist educators can use these models within their classes to improve student learning and mastery of content while providing choice within their preferred learning styles would be beneficial data.

A focus at the elementary level is needed as many studies were on older students or preservice teacher candidates. These questions will help to improve the use of a choice-based art and a TABs classroom for many visual arts specialists who want to provide their students with choice while maintaining the integrity and impact of their program to best meet the needs of their students.

Research also shows that educators have an interest in applying Multiple Intelligences, but how to apply it within their curriculum in a manageable way when it comes to putting it into practice is still relatively open for discussion. Various studies in this review listed this as a limitation to the research. Possible research on classroom management styles, such as the flipped classroom model, should be reviewed to help guide teachers in moving forward with this educational practice.

Implications for Professional Application

Choice based art programs and TAB classrooms have become very popular in art education, but is there a cost where the foundational knowledge is being missed or gaps are unintentionally being created in the student's visual arts education. The teacher needs a way to prove each student is meeting the state standards required per grade

level while allowing the students to have choice. I feel strongly that student choice is important and beneficial, as the studies have pointed out, but concerned about the possible gaps in the student's education. If an educator is able to apply best practices while providing students with choice on their preferred learning styles using a flipped classroom model, the teacher has the ability to fill this gap within their classroom. The flipped class model modified can allow for students to preview instruction or demonstrations independently while the teacher works with students who need assistance or collaboration as Fazal et al. (2020) commented on. This style allows the teacher to work with their lower performing students while their higher performing students are still being challenged with rigorous digital content.

This could potentially be viewed as a hybrid choice-based, or TABs classroom model where options are provided from the guidance of the instructor where students get to select a lesson that meets the standards they need to meet for that grade level. The teacher facilitates content introduction and project requirements, while the classroom discussion can become focused on the students original art work. This is not to say whole group lectures and demonstrations would be cut out completely. Douglas and Jaquith (2018) write about the various ways an art educator might provide choice such as centers in a TAB's classroom fit under the larger choice umbrella using various teaching pedagogies and instructional styles. Connecting an instructional style that brings in the multiple intelligences within this learning model can help to motivate students during instruction. While Iflazoglu Saban (2011) noted teachers have a general understanding of the multiple intelligences but are unsure how to use them in the

classroom, many studies from this literature review found the multiple intelligences supported students' motivation and task engagement during the lesson.

For example, an elementary art specialist could introduce a topic with a whole group model and provide any necessary whole group demonstrations, but for the assignment completion, students could view or watch a pre-made video clip following the flipped classroom model. Students are provided choice for task completion, it aligns with the new Minnesota state standards for students to incorporate personal choice within their artwork, and it provides the teacher with the reassurance that students are still within the other Minnesota state standards that are required for each grade level. The students are introduced to the necessary concepts and curriculum, but given the freedom to choose how to demonstrate their new knowledge. While as in choice based art room and TAB run classrooms, if these structures are not in place and students have unlimited freedom without set parameters, it could be hard for an educator to prove these skills and requirements are being observed and met by all learning in the classroom.

This is not suggesting that all teachers who run a choice-based art room or TAB classroom are not making sure these requirements are documents, but possibly help aid in data collected from studies and provided guidance for an art specialist, specifically at the elementary level, on how such a classroom can be managed within these boundaries. Continuing to share our experiences with choice-based art instruction and the execution of instruction that align with the Minnesota state standards as well as future research is needed to improve upon these models. It allows the teacher to still

maintain control while giving the students comparable control and freedom within their artwork.

Conclusion

The review of the research question, how can the application of the multiple intelligence theory have an impact on a choice based art classroom at the elementary level? Findings from this literature review are as such: the connection between providing students choice in the classroom and the integration of implementing the multiple intelligences has research backing proving that it promotes student engagement and reduces behaviors. Combining choice and multiple intelligence theory together can maintain the motivation and task completion by students, if not promote it more. The combination of choice and the multiple intelligence theory also connect the two core concepts by giving the students open ended tasks and problems to solve in a way that promotes intrinsic motivation within the learner. With the integration of the flipped class, teachers can assist in achieving choice within the classroom and allowing students to demonstrate their knowledge of the curriculum. This can be done by providing choice lessons with instructions for students to carry out the learning objective in their selected multiple intelligence learning model.

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