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## Cinematherapy in gifted education identity development : integrating the arts through STEM-themed movies

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## Cinematherapy in gifted education identity development : integrating the arts through STEM-themed movies

### Abstract

This paper examines the crucial need for inclusion of a curricular component within gifted and talented programming that addresses the social and emotional development of gifted students. This component, cinematherapy, addresses the asynchronous development of gifted students through the lives of gifted characters. This paper details the process for selecting STEM-themed movies to view with students, provides a table of relevant STEM films that feature gifted characters, and possible general discussion questions to be used after viewing.

CINEMATHERAPY IN GIFTED EDUCATION IDENTITY DEVELOPMENT:  
INTEGRATING THE ARTS THROUGH STEM-THEMED MOVIES

A Journal Article Paper

Submitted to the

Department of Curriculum and Instruction

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by

Timothy Carl Kangas

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Cinematherapy in Gifted Education Identity Development:  
Integrating the Arts through STEM-Themed Movies

has been approved as meeting the research requirement for the  
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## ABSTRACT

This paper examines the crucial need for inclusion of a curricular component within gifted and talented programming that addresses the social and emotional development of gifted students. This component, cinematherapy, addresses the asynchronous development of gifted students through the lives of gifted characters. This paper details the process for selecting STEM-themed movies to view with students, provides a table of relevant STEM films that feature gifted characters, and possible general discussion questions to be used after viewing.

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## CHAPTER I

### INTRODUCTION

#### Description of Topic

This project focuses on cinematherapy as a way of reaching gifted students through characters in movies. The goal of this project was threefold. The first goal is to discuss the use of cinematherapy as a tool for the social and emotional development of students with gifted and talented capabilities. Since many gifted and talented students identify in areas related to STEM fields, the second objective was to provide a framework for teachers to locate STEM-themed films that exhibit different profiles of giftedness. This goal is accomplished by creating tables that allow exploration of STEM films that can assist gifted students in developing their identities. The final goal of this project is to provide a general list of discussion questions that may be adapted to the film selected and to provide insights from classroom testing of the films with gifted students. Taken all together, these should provide a means for teachers to select the appropriate movie and discussion questions to use with their students.

#### Rationale

Programming for gifted and talented students is under constant scrutiny to ensure that students are being challenged appropriately in academic situations whether through the use of compacting curriculum, subject area or whole grade acceleration, or by providing opportunities for students to excel in both core and non-core subject areas. Within many programs what risks being overlooked is the “whole” child, not simply the intellectual abilities, but also providing for the social and emotional development. The

driving force behind this project is the recognition that gifted students have asynchronous developmental emotional needs that require their education be qualitatively different from typical peers (Peterson, Betts, & Bradley, 2009).

Gifted children develop at different rates intellectually and emotionally than their peers. When identifying a student for inclusion in a gifted and talented program, it is possible to find that although (s)he may academically be on par with a fifth grader, (s)he may be social-emotional-developmentally closer to his/her to third grade or same-age peers and possibly even behind. This separation in social or emotional development can lead to conflicts within gifted students' minds. Because of this, educators need to be able to adjust curriculum not just for the academic needs of these children, but also for their social-emotional or affective needs. Using cinematherapy is a way to meet the social and emotional needs of gifted students through group discussions of pertinent movies featuring one or more gifted characters.

#### Purpose and Importance of the Article Being Published

This project will provide educators with a rationale for meeting the needs of gifted students through cinematherapy. Suggestions of appropriate movies and possible discussion questions are provided. The movies focus on STEM (Science Technology Engineering Mathematics) areas because individuals with STEM knowledge constitute a shortage area in the workplace and an area that is experiencing growth in jobs. Also, gifted students often demonstrate giftedness in subject areas associated with STEM. Preparing gifted students to consider STEM careers and at the same time develop a better understanding of their own individual gifted characteristics is the goal of this article.

## CHAPTER II

### METHODOLOGY

#### Guidelines for Publication for the *Journal of STEM Arts, Crafts, and Constructions*

This journal was chosen because it combines the arts with STEM. Movies are an art form that can reach students in a familiar setting and the themes of the movies address STEM areas.

#### Aims and Scope

The *Journal of STEM Arts, Crafts, and Constructions* is a peer-reviewed journal that publishes original manuscripts presenting student-tested visual arts projects, crafts, and constructions for teaching Science, Technology, Engineering, and Mathematical (STEM) concepts and skills through inquiry and constructivist learning. The *Journal* is supported by the Center for Educational Transformation at the University of Northern Iowa in Cedar Falls, Iowa.

The *Journal of STEM Arts, Crafts, and Constructions* publishes two types of articles related to arts and spatial-thinking skill integration into STEM: practical articles and research articles.

#### Practical Articles

The practical articles provide innovative activities in one or more of the STEM areas in a manner readily accessible to members of the general public working in informal educational settings such as youth group leaders, neighborhood play group organizers, grandparents, museum educators, afterschool program developers, and camp staff, along with classroom teachers and homeschoolers. The focus of a practical article is

on integrating one or more STEM concepts with the arts or spatial thinking skills in an appealing, creative, meaningful manner to promote deep mental construction of the concept rather than being “cute,” superficial, or gimmicky. Manuscripts for practical articles provide (1) title page with title, all authors, affiliations, contact information, (2) abstract with four key words, (3) background for the STEM concept including appropriate discipline-related national standards supported by the activities, (4) step-by-step directions with a materials list and approximate time noted, (5) example products, (6) tips for managing, assessing, and extending the project, and (7) insights from testing of the activity with students.

#### Author Guidelines for Practical Articles

1. Practical articles should be written in first person (I or we), using a conversational tone and active voice to appeal to a broad spectrum of readers. Writing should be concise.
2. Use headings and subheadings to organize the manuscript.
3. Manuscripts *must* be submitted as Word documents, double-spaced with one-inch margins all around. Use a 12-point standard font such as Times New Roman, Calibri, Arial, etc.
4. References for the background section need to be recent (past 10 years, but preferably past 5 years) except when citing seminal works. Use in-text citations text and a reference list in the style of the sixth edition of the American Psychological Association.
5. Content Standards. Please note in the appropriate national standards from the Arts and addressed STEM content areas. Appropriate discipline-related standards include National Arts Core Standards [<http://www.nationalartsstandards.org/> ], the Next

Generation Science Standards [<http://www.nextgenscience.org/search-standards-dci>], standards of the International Society for Technology in Education (ISTE) [<http://www.iste.org/standards/iste-standards/standards-for-students>], the National Content Standards for K-12 Engineering/Engineering Technology from the American Society of Engineering Education (ASEE), and Common Core mathematics standards [<http://www.corestandards.org/Math/>].

6. Measurements should be given in both the English and metric system.
7. All images need to be sharp.

## CHAPTER III.

### ARTICLE MANUSCRIPT

#### **Introduction**

Programming for gifted and talented students is under constant scrutiny to ensure that students are being challenged appropriately in academic situations whether through the use of compacting curriculum, subject area or whole grade acceleration, or by providing opportunities for students to excel in both core and non-core subject areas. Within many programs what risks being overlooked is the “whole” child, not simply the intellectual abilities, but also providing for his/her social and emotional development. The driving force behind this project is the recognition that gifted students have asynchronous developmental emotional needs that require their education be qualitatively different from typical peers (Peterson, Betts, & Bradley, 2009).

Gifted children develop at different rates intellectually and emotionally than their peers. When identifying a student for inclusion in a gifted and talented program, it is possible to find that although (s)he may academically be on par with a fifth grader, (s)he may be social-emotional-developmentally closer to his/her to third grade or same-age peers and possibly even behind. This separation in social or emotional development can lead to conflicts within gifted students’ minds. Because of this, educators need to be able to adjust curriculum not just for the academic needs of these children, but also for their social-emotional or affective needs. Students with high cognitive abilities often experience greater emotional depth (Hébert & Sergent, 2005). Gifted students are as emotionally stable as their peers, but because they are more mature in some domains they

may experience certain kinds of social and emotional difficulties that need to be addressed for optimal development (Robinson, 2002).

The goal of this project is threefold. The first goal is to analyze the use of cinematherapy as a tool for the social and emotional development of students with gifted and talented capabilities. Since many gifted and talented students identify in areas related to STEM fields, the second objective is to provide a framework for teachers to locate STEM-themed films that exhibit different profiles of giftedness, allowing choice of film(s) that may benefit a student or group of students in the most powerful and effective way. This goal is accomplished by creating tables that allow exploration of STEM films that can assist gifted students in developing their identities. The final goal of this project is to provide a general list of discussion questions that may be adapted to the film selected and to provide insights from classroom testing of the films with gifted students.

This paper will review information on the affective development of gifted children and methods that can be used to support these students. A review of the Autonomous Learners Model that incorporates an affective support domain and the National Association of Gifted Children's Standards that address the affective needs of gifted students are provided. The Next Generation Science Standards and National Core Arts Standards that relate to the project will be addressed. Two areas of support, bibliotherapy and cinematherapy will be reviewed for their use. Finally, a review of the profiles of giftedness that can be used to categorize characters in films featuring gifted students in order to make selecting a film easier for educators will be conducted.

## Literature Review

### Autonomous Learners Model

The development by Betts and Kercher of the Autonomous Learners Model (ALM) in 1981 with a revision published in 1996 and the work by Betts and Neihart in the creation of the Profiles of Giftedness in 1988 and subsequent revision in 2010, highlight the importance of developing all aspects of gifted and talented students. The ALM is a comprehensive programming model. The ALM focuses on five dimensions: orientation, individual development, enrichment activities, seminars, and in-depth study. When working within the ALM model to address social and emotional needs of students, the focus needs to be on the orientation and individual development dimensions, in other words, students need to be provided a framework which gradually releases responsibility for their learning to them (Davis & Rimm, 2004). The orientation dimension allows students to explore who they are while the individual development dimension, as its name suggests, provides scaffolded opportunities that focus on skill development to become a life-long learner able to direct one's own learning (Davis & Rimm, 2004).

The ALM model (Betts & Kercher, 1981) is used by schools throughout the United States, Australia, New Zealand, and the United Kingdom as a foundation for the design of programming to meet the needs of gifted students. These needs must address the following areas of social and emotional development: academic advancement when compared with same-age peers, the struggle to prevent underachievement and reduce the potential damaging effects of perfectionism as a response to their giftedness, and facing the reality of having a physical disability or psychological diagnosis in addition to



meeting the criteria for identification in the talented and gifted student pool (Neihart, 2002).

Gifted students may have difficulty adjusting to social interactions because of their advanced academic skills that can sometimes put them in classrooms with different age classmates. They may find themselves as the “odd-one out” because of the differences in how they approach activities such as playground games or classroom discussions. They may also find that their same-age peers are unable to relate to their problem solving approaches or increased sensitivity to issues. Curriculum accommodations that focus solely on academic enrichment are not enough to bridge these affective needs.

### **National Gifted Programming Standards for Gifted Students**

The National Association for Gifted Children (NAGC) has published programming standards for pre-K to grade 12 gifted students. The goal of these standards is to provide guidance for schools establishing and evaluating programs to meet student academic and affective needs. Standard 1: Learning and Development is central to meeting the diverse needs of students in the gifted population as it encourages educators to “promote ongoing self-understanding, awareness of their needs, and cognitive and affective growth of these students in school, home, and community settings to ensure specific student outcomes” (NAGC, 2010). Other standards that specifically relate to the affective educational needs of gifted students include: Standard 2.1: Assessment - Identification; Standard 3.2: Curriculum Planning and Instruction - Talent Development; Standard 4.1: Learning Environments - Personal Competence; Standard

4.2: Learning Environments - Social Competence; Standard 5.1: Programming - Variety of Programming; and Standard 6.2: Professional Development - Socio-emotional Development. The overarching theme throughout these standards is the goal of developing self-understanding in gifted students and providing them with skills and tools needed to increase their capacity and ability to utilize their giftedness in the best possible way.

The current educational environment readily uses labels to identify and classify students to meet academic needs. It is all too easy to fail to realize the impact of these labels which may contribute to conditions in which social and emotional issues may develop in gifted students due to competing external and internal pressures. Hébert and Hammond (2006) as well as Fung (2008) focused part of their work on addressing this growing list of concerns. These concerns include issues related to forming and maintaining healthy friendships, dealing with peer pressures, gender and identity issues, coping with high expectations, perfectionism, handling stress, and conflict resolution. Parents and guidance counselors should share some responsibility for the fact these issues may be unrecognized and under-addressed because of the perception that these students, referring to gifted and talented students, don't need that kind of help. Gifted and talented program facilitators must be able to identify and deal with issues before more serious complications arise.

In many respects, gifted children are very similar to non-gifted children in terms of the struggles they face while growing up. Gifted children also face a specific and unique set of challenges that result from being gifted (Frasier & McCannon, 1981).

Among these issues are boredom in academic situations, being misunderstood by teachers and peers, and lack of acceptance by peers, difficulty setting goals, negative self-concept, and difficulties in relationships.

To address the spectrum of services being used to meet the varying social and emotional needs of gifted students, Cross (2004), developed a “Continuum of Psychological Services”. This continuum of services provided for students’ needs begins with advising on one end from parents, teachers, and counselors and progresses all the way to psychopharmacology on the other end involving psychiatrists and physicians. The five steps along the continuum, from advising to guidance, followed by counseling and therapy, and finally reaching the level at which psychopharmacology is the best available solution. This continuum allows for the progressive application of services that may be needed by gifted students as they work toward a greater understanding of and ability to develop their gifts. For most teachers, the affective activities chosen for students fall within the advising and guidance categories. It is here that our roles play the greatest importance in shaping the curricular decisions that promote and develop an understanding of giftedness.

### **Next Generation Science Standards and National Core Arts Standards**

The Next Generation Science Standards (NGSS) were created as a way to integrate Science, Technology, Engineering and Math (STEM) fields together in a way that led to greater understanding and practice for students. The standards did not directly address the affective domain for students, however, the practices, crosscutting concepts and disciplinary core ideas contained within them can be applied when working with

gifted students in affective development. (NGSS Lead States, 2013) An understanding of one's self as well as one's abilities in specific fields can enable students to greater success in pursuit of goals.

The practices dimension of the NGSS allows for students to develop the sets of skills needed to perform both scientific inquiry and engineering design as they look to solve problems they encounter in their lives. The crosscutting dimension allows students to experience the various interactions of different fields of inquiry and how there are relationships between them as opposed to isolated areas. Lastly, the disciplinary core ideas refer to aspects to which curriculum, instruction and assessments can be tied according to four sets of criteria. The key element in this dimension with regard to this paper would be the criteria that relate to interests and life experiences and societal or personal concerns that relate to scientific knowledge.

Using films as a means to address affective needs with gifted and talented students can also be supported through the National Core Arts Standards (NCAS). Film is an expression of art and can help accomplish philosophical and lifelong goals established in the NCAS including communication; creative personal realization; culture, history, and connectors; means to wellbeing; and community engagement. The domains of Responding and Connecting, found within the four anchor standards of the NCAS, provide means to address affective development. (National Coalition for Core Arts Standards, 2012)

## **Bibliotherapy and Social and Emotional Development of Gifted Students**

One of the early processes developed to accomplish social and emotional guidance was bibliotherapy. In simple terms, bibliotherapy refers to using literature and literary characters that show similar capabilities or characteristics to the gifted students. This allows students to process and understand that there are other individuals similar to them in experiencing needs that are different from the general population; that they are not alone. It also provides an avenue for developing problem solving skills necessary to be successful (Hébert, 2009). There is a wide variety of fiction and nonfiction books that reflect issues gifted students may face that allow teachers to match books to specific student needs (Whitney & Hirsch, 2000).

The use of biographies to help gifted students understand giftedness was pioneered in the 1920s by Leta Stetter Hollingworth. As an elementary teacher, Hollingworth encouraged her students to select biographies of gifted individuals to read. The students then led a discussion period with the rest of the class in which they asked and answered questions about the book that they had chosen. By the end of the activity, she discovered that the interest level in the biographies chosen and the connection to the individuals discussed generated so many questions from students that they could not adequately address in the time provided, so she provided a box for additional questions to be deposited in and answered as time permitted (Hébert, 2009).

This strategy of examining the lives of famous people through their biographies and autobiographies along with fictional characters can provide gifted youth with a unique perspective on developing an understanding of what being gifted means,

overcoming obstacles in their lives, and developing their strengths as lifelong learners with well-developed talents (Moon, 2002). It should be noted that the works selected for use in discussions with students must be carefully selected for their potential usefulness in developing positive solutions to the affective concerns that gifted children face (Hébert, 2009).

Bibliotherapy is not an isolated or individual process that can be completed without interaction or discussion with others. For it to have the most profound impact on a gifted child's understanding of giftedness, the process requires more than handing a child a book and hoping for the best. Rather, students should be given the book to read and provided the opportunity to discuss it with a mentor or adult facilitator who can ask questions, listen to the answers, and keep the conversation about what the child internalized from the book going so that it impacts the child's life in a positive way (Whitney & Hirsch, 2000).

### **Cinematherapy**

Rooted in the tradition of bibliotherapy is the emergence of the use of movies rather than traditional texts to help students understand themselves. Cinematherapy uses films in which characters show gifted traits or have to deal with circumstances associated with giftedness. Once again, the process for gifted and talented facilitators is to allow students to view the films and recognize that there are individuals or characters that have similar circumstances to their own to understand their giftedness. The students move towards a greater acceptance and understanding of their giftedness through the viewing of others with similar traits. They begin to realize that they are not alone and are not

completely unique. However, they may continue to feel somewhat isolated because there is no one similar to them in their everyday experiences. Bibliotherapy and cinematherapy use different forms of media to accomplish the same goal of providing a “self-help” opportunity to increase a student’s awareness of coping with being gifted (Moon, 2002).

There is a small but growing body of research that details support for the use of books, and ultimately, movies to promote social and emotional growth. Primary support for the use of video therapy or cinematherapy is found in the research done by Hébert (2009) who noted a change that occurred when a movie viewer was able to identify with a character from a movie and experience emotional growth. Adding cinematherapy as a component of the curriculum can help address the affective needs of gifted students.

Newton (1995) acknowledges the possibility of criticism for the inclusion of video therapy in affective programming designed to meet the needs of gifted students. In response to those who might view it as frivolous, a comparison is made to the impact of adults viewing films that are considered to be cinematic masterpieces. The use of carefully selected, high-quality films with students may provide a previously unexplored avenue to reach students who do not demonstrate proficiency in reading or who may exhibit traits of underachievement as a result of language barriers and socio-economic disparities. The challenges of not being an able reader may prevent them from being able to demonstrate the impact of truly comprehending the message contained within the written material, while movies eliminate that barrier.

Hébert and Hammond (2006) note that following the viewing of a movie, the facilitated discussions led by a gifted and talented teacher and addressing the issues and

experiences of gifted students portrayed in the movie would fall under guidance services as described in Cross's continuum. This allows each teacher to fill the role of guiding students to a greater understanding of their giftedness to appreciate themselves and how they fit with others. Movies provide the link to characters and ideas that they may feel exist but aren't able to interact with on a regular basis. While viewing films about giftedness and gifted characters provides an opportunity for the student to feel a lesser sense of isolation as (s)he is able to "connect" with a gifted character, it alone cannot accomplish the goal of affective growth for students.

The guiding principles for using movies as a part of a gifted curriculum are to provide students with one or more characters with which to identify, to provide an opportunity to reflect on that identification, and to nurture the ability to connect with a character(s) and experience growth as a result of activities designed around the viewing of a particular movie (Hébert & Hammond, 2006).

### **Profiles of Gifted Characters**

Betts and Neihart (1988, 2010) identified six types of profiles to classify gifted and talented students. The purpose of the profiles was to provide teachers and parents with a tool to better understand the perception of the gifted and talented. The six types or profiles include: the successful, the challenging, the underground, the dropouts, the double labeled, and the autonomous learner. Each of these types comes with a description of characteristics and learning style needs of these gifted learners. The framework provided by these profiles allows parents and educators to consider the different types of giftedness, the specific needs of each, as well as design support



mechanisms that encourage the strengths and allows for development of areas of weaknesses for each types of gifted student.

The first type, *successful*, generally tends to be the type of student readily recognized during the process of identification by teachers as being potentially gifted because these students have learned to demonstrate what they are supposed to do in school. Teachers expect they get the work done, they turn homework in, they are paying attention in class, and they answer questions and participate. These are students that essentially have learned to “play school”. Their ability to be “teacher-pleasers” puts them at risk because they are often perfectionists, too willing to conform, and their motivation comes from extrinsic sources. They must be taught how to take risks, be assertive and develop a sense of intrinsic motivation (Betts & Kercher, 1999).

The second type, *challenging*, refers to students who sometimes are not identified for gifted programs. They may be overlooked because they do not necessarily follow the rules, their abilities show up very well on aptitude tests, they can score very well in assignments and programs, but they don't follow the rules. They do not “play school” the way teachers often like and, therefore, often are not identified in the same way that the successful are. These are students that need support because they become easily frustrated with way the traditional school system is set up. School does not meet their needs for pacing nor does school’s traditional instruction allow them to focus on their passion areas. Their frustration grows as they continue to find that they do not necessarily like what is going on with the curriculum. They may not feel included in social groups, because they stand out or they act out in class; sometimes they will be

defiant or sometimes they will provide a perception of just being different. Being creative is a catch-22 for this type of student. Their unorthodox approach to solving problems may predispose them to feelings of frustration, boredom, and rebelliousness which can lead to power struggles with authority figures. They need an educational experience that focuses on building skills related to self-awareness, self-control, learning to be flexible and what belonging to a group means (Betts & Kercher, 1999).

The third type, *underground*, are students that are gifted but may try to hide their giftedness for various reasons. Those reasons can be aligned with gender differences. Middle school females may downplay their giftedness to fit in with social groups. For males, masking of giftedness may develop as they try to emphasize athletic talent. Both genders may find the need to fit in with the social element that is prominent and hide their intellectual abilities to fit in with the social norms. These students would prefer to go unnoticed or to be invisible. They frequently do not have well developed intrapersonal skills and, as a result, appear to be shy, quiet, and/or exhibit signs of a poor self-concept. They will not take risks that might rock the boat or cause them to stand out from their peers. A programming component that meets their needs would highlight building a strong self-concept, focus on skills needed to interact with other gifted students in a positive manner and make decisions independently that sometimes involve putting their self-concept and ideas at risk (Betts & Kercher, 1999).

The fourth type, *dropout*, are those gifted students who find themselves reaching the point at which the school system is not meeting their needs and they feel rejected. They do not wish to play the system anymore; they may withdraw, they may act

defensively or lash out; they may just become more depressed and internalize the feelings they have given up. Educators may identify them as being at-risk rather than gifted because of their expressions of anger, rebelliousness, and low self-esteem. These students benefit from gifted and talented programming that emphasizes strong mentor relationships (Betts & Kercher, 1999).

The fifth type of students is the *double labeled*, sometimes referred to as twice exceptional students. These students are gifted but their giftedness may be hidden by disabilities that are more pronounced. These can include blindness, physical impairment affecting mobility, or a learning disability, such as dyslexia, that prevents their intellectual ability from showing through. A problem is that the school identifies them first by the disability and may fail to recognize their other talents. They may not show up through traditional means of identification because a student coming from a culturally diverse background or is an English Language Learner may not be able to communicate their knowledge due to language barriers or cultural differences. These students may possess the ability to acquire information and rapidly assimilate to course work as an indication of giftedness. Programming that is most beneficial for these students emphasizes the development of social and emotional skills such as coping strategies and develops a support network to reinforces their skills and strengths as a gifted student.

Finally, the sixth type, the *autonomous learners*, refers to gifted students who have learned not only about how to work the system but also how to meet their needs in ways that allows their giftedness to develop and be recognized. Gifted programs may no longer be necessary for them, but they may play a key role in developing those autonomy

skills. Autonomous learners can adapt to new situations according to their needs. They have abilities, knowledge, confidence and an internal locus of control that shows that they know where they are going (Betts & Kercher, 1999).

## **Method**

### **Choosing the Movies**

A variety of sources were consulted to create a list of movies featuring gifted characters for possible viewing including internet websites, articles discussing gifted students in films (Cox, 2000; Hebert & Hammond, 2006; Fung, 2008), and searchable databases such as Hoagies Gifted Education Page (Movies featuring gifted kids (and adults!), 2015), Listverse (10 Films portraying genius, 2010) and About.com (10 Movies gifted children will love, n.d.) The most frequently occurring movies were grouped on the list together and common elements allowing for easier sorting were identified. Some of the elements identified included movie rating, STEM focus, minority representation, and social-emotional issues.

The first sort was based on characteristics exhibited by gifted characters in the movies associated with Betts and Neihart's (1988) Profiles of Giftedness. The Betts and Neihart profiles provide some general characteristics with which both students and teachers can identify that do not follow Hollywood stereotypes of nerd or geek. The characters identified as gifted were then categorized by Betts profile type with a brief explanation of the traits exhibited that led to the classification.

Motion Picture Association of America (MPAA) ratings and year of release were provided for each movie so the teachers could easily identify appropriate age levels.

Several movies were PG-13 or R-rated and it is advised to obtain parental approval before showing complete movies or even excerpts to junior high or high school students. The movies may be appropriate to show and may deliver the message in a powerful way, but because of their ratings they require parental approval.

Additional characteristics that could be used for filtering movies were found in the federal definition of giftedness. These include: general intellectual ability, specific academic aptitude, leadership, visual, and creativity. Additionally, movies could be sorted by how realistic the portrayal of the gifted character seems. Some of the movies offer more of a fantasy or a heightened exaggeration versus a more realistic or biographical approach. The portrayal of the gifted individual or giftedness was negative or positive in nature was noted.

As students encounter social and emotional issues, it is important to identify the emotional issues and relationships present within. To ensure that the whole student population could be included, movies were reviewed for minority group representation including ethnic group, gender, disability, sexual orientation, or lower socioeconomic status. Finally, the movies were classified according to the STEM subject focus present: science, technology, engineering, and math.

The movies included in the list were all widely-released in theatres and available on video and streaming services. They should be reviewed by the teacher prior to showing to the class to be sure that the themes within the movies fit with the students that will be viewing. Not all movies will connect with all students, care in choosing the

appropriate movie should be given. Included in the synopsis of each movie are points that could be discussed with students.

### **Developing Discussion Questions for STEM Movies**

A list of questions was compiled to guide discussion of the movies because the use of cinematherapy must not end with the viewing of the movie, but include opportunities for discussion, reflection, and extension activities. Fisher (2009) blogged about using bibliotherapy with students and providing them with a bookmark containing questions on which she wants them to focus as they read. Hébert and Hammond (2006) likewise noted the importance of having a menu of questions ready to fuel discourse of the students' experience. Encouragement of conversation about the stories students view is important (Cox, 2000). The challenge is finding questions that are developmentally appropriate. Using a list of possible prompts suggested by experts in the field, a list of general questions was compiled that can be adapted to specific movies and grade levels as needed.

Although books allow students to construct their own setting for the story aiding in the development of connection to their lives, movies can provide additional elements of visual and auditory sensations. Therefore, it is important to take into account how the movies are presented. Clothing, setting, and other visual clues may add to or detract from how students relate as well as realistic or over-stereotyped characters. Failure to create an accurate portrayal of issues that impact gifted students may diminish the possibility of students having a positive experience as a result of viewing or reading a particular movie or book (Dixon, 2009).

Additional activities either for individuals or groups of students can be added beyond discussion to allow for further exploration and opportunities to make connections. These activities can be aligned with core academic learning standards. Some specific activities that relate to visual or performing arts are: artistic expression through drawing, painting, role-play; creative writing, such as poetry, and journaling, and creative problem solving (Hébert & Hammond, 2006).

## Results and Discussion

### STEM Movies

The tables are organized to allow teachers to find a movie suitable for their classroom or student needs. Table 1 provides the Movie Title, Year, and Rating in one column, a brief synopsis of the story in the next column, and the Betts Profile of the primary gifted character in the final column. Table 2: Movie Characteristics and Suitability for Grade Level Viewing provides a variety of sub-groups that also can aide a classroom teacher in selection including: level of realism, positive/negative portrayal, area of giftedness, minority representation, and STEM focus.

Table 1. Table of STEM-Themed Movies Used in this Paper

Movie (Year) MPAA Rating	Synopsis	Betts - Profile
21 (2008) PG-13	21 tells the story of an MIT student who is brilliant with math and numbers. He's recruited by a professor into a group of students that travel to Las Vegas to count cards and run a scheme to rig Blackjack Games. The story deals with relationships and the misuse of talents and inappropriate uses of abilities. Potentially good with high schoolers but this film has rough points and needs to be addressed with discussing the moral implications of your talents.	Challenging: Not playing by rules, pushing boundaries

(table continues)

Movie (Year) MPAA Rating	Synopsis	Betts - Profile
A Beautiful Mind (2001) PG-13	A Beautiful Mind tells the story of John Nash, a brilliant mathematician and eventual Nobel Laureate in economics. The story focuses around Nash's schizophrenia and the toll it takes on his family. This is a very good film in dealing with some of the issues around mental illnesses that can be associated with giftedness and the pressures of performing and succeeding at high levels.	Twice- Exceptional: Battling with mental struggles
Contact (1997) PG	Contact follows the story of a scientist who has been involved with the search for extraterrestrial life through the SETI program. A message is discovered in a radio signal and plans for a mysterious machine are revealed. The religious and philosophical implications of possibly making contact with aliens are discovered and form a core of this science-fiction film.	Challenging: The lead character, Ellie, pursues her goals even if they are outside the rules established by her superiors.
Good Will Hunting (1997) R	Good Will Hunting tells the story of Will Hunting a young man from a working-class neighborhood in Boston who works nights as a janitor at MIT. While there he secretly studies and solves complex math formulas and other high-level projects where he is eventually discovered by one of the professors. He is involved in a fight and put under the supervision of the professor provided he seek counseling for his anger. During this counseling session he learns to deal with his ability in forming relationships in a positive manner. A good film for talking about how to use your gifts even if you are if it means pulling you away from your comfort zone and where your area is.	Underground: Denies talent to others but seeks opportunities to display when it fits him.  Drop-out: Doesn't believe the system is willing to accept his ability because of his background.
Imitation Game (2014) PG-13	Imitation Game tells the story of Alan Turing as he's recruited by the British government to help break the German code machine enigma during World War II. Allen is a brilliant mathematician but runs outside the rules of the government and the military in terms of how to approach things all the time and butts heads with his superiors quite often. In addition Turing is an underground homosexual which at the time is illegal. Good story to discuss sexuality and other topics of how to use your skills and pressures to conform within society.	Challenging: Does not always follow the rules if they go against his process.  Underground: Has to hide his sexuality.

(table continues)



Movie (Year) MPAA Rating	Synopsis	Betts - Profile
October Sky (1999) PG	October Sky tells the story of a young boy in coal mining town who is caught up with an interest in rocketry after the launch of the first satellite. Faced with pressures of his family to simply work because of the high cost of college, he is encouraged by a group of friends and a caring teacher to pursue physics and rocketry in math and science despite no money for college or further education. This is a good story for talking about expectations and dreams and following along those paths despite the obstacles that come.	Autonomous: Students with few ready resources work with what they have to pursue goals and interests.
Real Genius (1985) PG	Real Genius follows a gifted high school student who is entered into college early in order to help a professor on a secret government project, unknown to the student. He encounters various other gifted students, many of whom follow strong stereotypes. Together they learn to cope with the pressures of high college expectations, solve the professors technical problems and uncover the professor's scheme. Provides an opportunity to talk about acceleration, stereotypes, relationships, expectations, and the proper use of abilities.	Successful: Highly able student is admitted to college early where he struggles to adapt to the expectations.  Challenging: Student rebels against the 'system' that he doesn't think matches his needs.
Revenge of the Nerds (1984) R	Revenge of the Nerds follows two friends with computer skills as they head to college. The friends encounter difficulty with the football team and fitting in on the college campus. Eventually they form a fraternity with a group similar group of outcasts and nerds that follows many stereotypical looks at higher intelligence. As a group they learn to overcome the bullies and confront their fears. This is not really a school appropriate film but it does help engage conversations about stereotypes of giftedness as well as fitting into a group and overcoming obstacles.	Successful: Used to following the rules and having things work out, face challenges at college.  Autonomous: Develops over the story

(table continues)

Movie (Year) MPAA Rating	Synopsis	Betts - Profile
Stand and Deliver (1988) PG	Stand and Deliver tells the story teacher Jaime Escalante and his attempts to teach high-end math to inner-city Hispanic youth and other minority students. From a gifted standpoint it tends to focus on the teacher's ability to motivate students and overcome cynicism within the educational community that lower socioeconomic or minority students can be asked to excel in higher academics that even has testing services coming to prove the results weren't falsified. A good point for discussion on where talent emerges and pressures within communities to perform or to conform within certain expectations and stereotypes.	Underground: Students ability is not recognized or valued until a teacher pushes them to excel.  Drop-Out: Students feel the system does not expect them to succeed so why try.
The Right Stuff (1983) PG	The story of the early days of America's astronaut and space program. This film follows the push to put Americans in space and the steps taken to find the individuals with the right mix of physical, intellectual, problem-solving and courage to push the boundaries and go further, faster, and higher than any humans had before. Personal stories of success and failure in this pursuit can lead to good discussions on both.	Successful: Many candidates come from backgrounds with a high level of success.  Autonomous: The select few have learned to push to achieve.
The Theory of Everything (2014) PG-13	The Theory of Everything tells the story of Stephen Hawking, a brilliant young scientist and mathematician who is diagnosed with a crippling disease. Intertwined is the relationship with Hawking's wife and his commitment to fight the disease and find a way to maintain his productivity through his mind. A good story of overcoming obstacles and brilliance could be used with gifted kids with disabilities to show the possibilities that exist for them.	Twice-Exceptional: Physical disability.  Autonomous: Finds a way to share his knowledge.

Table 2: Movie Characteristics and Suitability for Grade Level Viewing

Movie Title (MPAA rating)	Level of realism	Portrayal of gifted	Defined areas of giftedness:	Emotional Issues / Relationships	Minority	STEM focus
21* (PG-13)	reality	negative	Specific academic	misuse of gifts	female (not main character)	math
A Beautiful Mind* (PG-13)	reality	negative	Specific academic	psychological struggles		math
Contact (PG)	Science fiction	positive	Specific academic	moral and philosophical debate	female	science math
Good Will Hunting* (R)	reality	negative and positive	Specific academic	psychological struggles relationships		math
Imitation Game* (PG-13)	reality	positive	Specific academic Creative	societal pressure	female (not main character) LGBTQ	math science
October Sky** / * (PG)	reality	positive	Specific academic Leadership	parent teacher	low ses	math science
Real Genius* (PG)	fantasy	positive and negative stereotypes	Specific academic General intellectual ability	perfectionism asynchronous peers high expectations	female (not main character)	science
Revenge of the Nerds* (R)	fantasy	positive and negative stereotypes	Specific academic General intellectual ability	peer relationships	LGBTQ	science math

(table continues)

Movie Title (MPAA rating)	Level of realism	Portrayal of gifted	Defined areas of giftedness:	Emotional Issues / Relationships	Minority	STEM focus
Stand and Deliver* (PG)	reality	positive	Specific academic Leadership	peer expectations	minority	math
The Right Stuff (PG)*	reality	positive	General intellectual ability Leadership			science math
The Theory of Everything* (PG-13)	reality	positive	Specific academic General intellectual ability	degenerative disease	disabled	math science

\* Suitable for secondary only. \*\* Suitable for upper elementary

Table 3 provides possible discussion questions for cinematherapy with STEM-related films and was developed after consulting numerous articles including Van Tassel Baska (2009), Fisher (2009), and Hebert (2006). Teachers should review the film(s) they are using to tailor the questions to the needs of their students. Focus should be placed on questions that call for reflection and discussion and not simply recitation of facts. Be prepared to adjust and revise the questions to the discussion in class as it occurs as well.

Table 3: Discussion Questions for STEM-Related Films

Topic	Possible Questions
Intrapersonal	<p>How do you see yourself in the character(s) presented?</p> <p>How are you different?</p> <p>How would you handle the situations that are put in front of the characters?</p> <p>In your view, are these situations realistic?</p> <p>How do the expectations you have for yourself affect how and what you do?</p> <p>How do you handle competitive situations?</p> <p>Do you enjoy competition?</p> <p>How do you handle winning and losing?</p> <p>Would you rather have one specific talent that you are great at or many ones in which you are very good?</p> <p>How do you approach a problem which does to appear to have an answer?</p>
Interpersonal	<p>Compare how you think others see you.</p> <p>Do you think they see you in the same way as the character?</p> <p>How do the expectations others have for you affect how and what you do?</p> <p>How do you express yourself without coming across as bragging?</p> <p>How do you effectively communicate what you know?</p> <p>How do you work with others to reach agreement when you disagree on how to do something?</p>
Career and Passion Areas	<p>What are the things that interest you the most?</p> <p>What activities bring out a passion for learning or doing?</p> <p>What careers interest you?</p> <p>What kinds of obstacles prevent you from learning what you are really interested in?</p> <p>How can a mentor assist in learning more about a passion area or career opportunities?</p>

## **Classroom Tested Examples**

The classroom in which the movies were used was a high school class of sophomore students in a small city in the Midwest. Students were part of a Talented and Gifted program that used the Autonomous Learner Model as the basis for curriculum. Students met every other day either before school or during the school day.

Portions of *Good Will Hunting* (1997) were the first movie utilized with students. This film addressed how to cope with talents and to appreciate the talents one has. Students expressed that they could relate to the character not wanting to show too much ability for fear of being forced into leaving that which the character knows and in which the character feels comfortable. They also acknowledged the conflict of, at the same time, also wanting to use their abilities. The competition factor of being the smartest in the room was also discussed.

The movies *A Beautiful Mind* (2001) and *Theory of Everything* (2014) were reviewed with students. The primary focus of the discussions was on dealing with obstacles that can be put in the way of the students. Whether these obstacles are psychological or physical obstacles, students talked about developing a helpful support system. This is especially important for students who want to challenge themselves in areas in which they may have never before failed. Having a system to keep them going and remaining positive is important.

*October Sky* (1999) is a film that follows a young man's determination to follow his dreams despite economic and social obstacles put in his way. The students found similarities with the characters discovering a passion and wanting to pursue it even

against the wishes or advice of others. Finding and working with a strong mentor was noted as important to help guide students in pursuit of areas of interests.

### **Conclusions and Recommendations**

Cinematherapy is a useful tool that can help students gain a better understanding of themselves as gifted individuals and learners. Movies offer the opportunity for students to see portrayals of situations that may be similar to thoughts and feelings that they already experience played out for them. STEM-themed movies can connect with student interests and talents in a way that a typical classroom discussion may not. Concluding the viewing with a discussion using probing questions that cause reflection can help deepen the understanding for these students and enhance the learning.

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## CHAPTER IV

### CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

Cinematherapy is a useful tool that can help students gain a better understanding of themselves as gifted individuals and learners. Movies offer the opportunity for students to see portrayals of situations that may be similar to thoughts and feelings that they already experience played out for them. STEM-themed movies can connect with students interests and talents in a way that a typical classroom discussion may not. Concluding the viewing with a discussion using probing questions that cause reflection can help deepen the understanding for these students and enhance the learning.

#### Recommendations

I have used cinematherapy with my own high school students extensively and have seen many benefits for my students. The discussions resulting from the viewing of movies has been a great source of discovery for the students and myself in understanding their gifts and abilities and how they relate with others and themselves. Therefore, I recommend that this technique be used by other teachers.